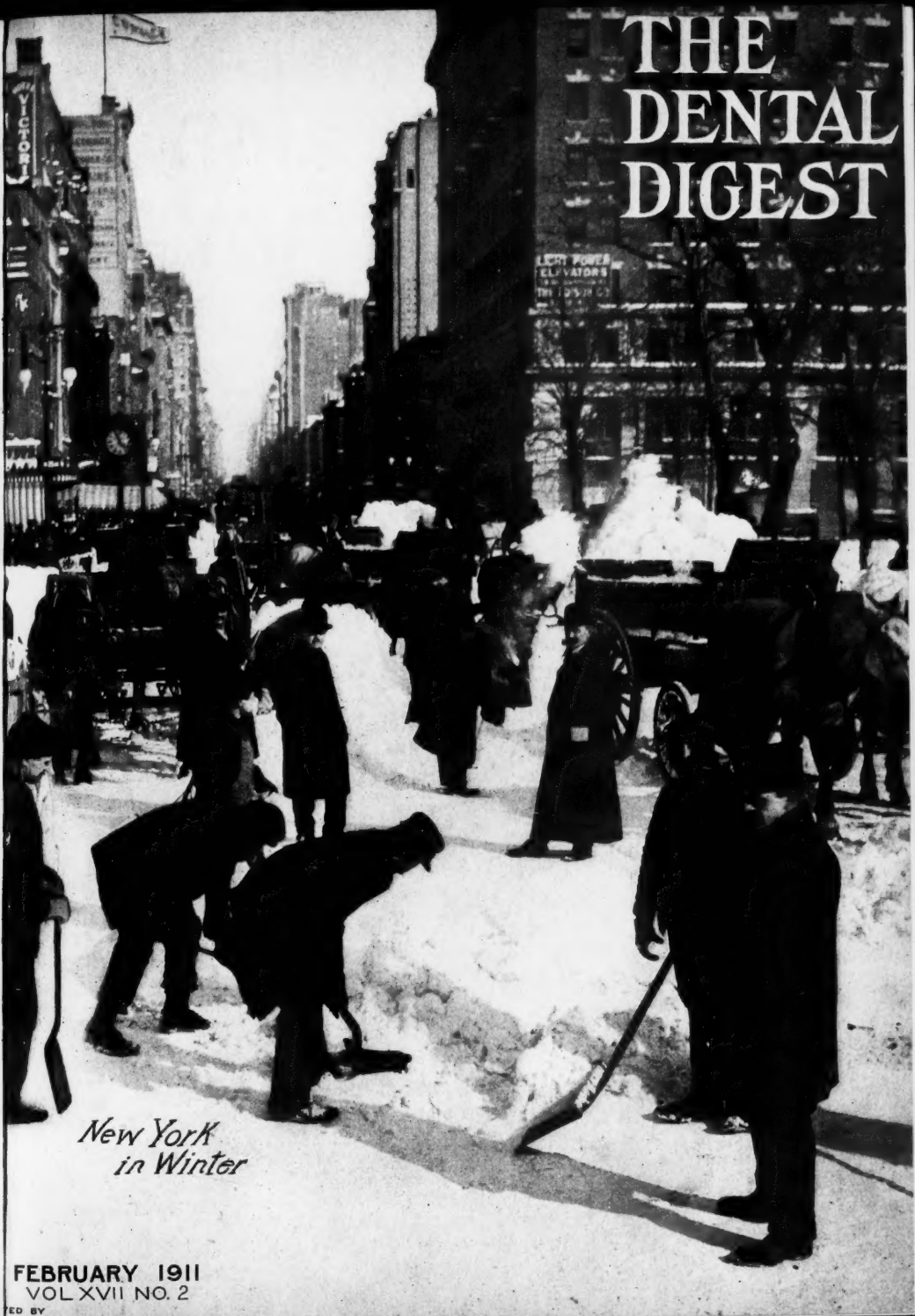
THE DENTAL DIGEST



New York in Winter

FEBRUARY 1911
VOL XVII NO. 2
TED BY
ORGE WOOD CLARK DDS

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THE DENTAL DIGEST

GEORGE WOOD CLAPP, D.D.S., Editor

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PRACTICAL ORAL PROPHYLAXIS

BY W. F. SPIES, D.D.S., PITTSBURG, PA.

No one who heard Dr. Black's excellent paper before the Second District New York Society, on January 9th, with its strong plea for the early recognition of pyorrheal conditions, will fail to recognize the importance of such papers as the following. Dr. Black emphasized the fact that it is our professional duty to familiarize ourselves with the conditions of the gums in health as a means of enabling us to diagnose the first faint signs of approaching inflammation. He impressed the fact that such service is one of the most important possible for a dentist to render, and that failure to render it often condemns the patient to much suffering and to the premature loss of the teeth.

The contentions of Dr. Spies are similar in character. They are worthy of the careful consideration of every conscientious dentist.—EDITOR.

THE term Prophylaxis means "to prevent." As here used it means to prevent diseases of the oral tissues, especially pyorrhea, or to so treat the tissues affected with that disease as to cause their return to health.

Before one can prevent a disease or treat it when present, it is necessary to know something about that disease and the possible methods of treatment. That means that every dentist who expects to apply the teachings of Oral Prophylaxis, should at least know what pyorrhea is, should be able to recognize the manifest symptoms, and should know something about treatment methods that are proving successful.

Pyorrhea is inflammation of the tissues surrounding the teeth. Sometimes the inflammation is slight and then the name is not appropriate. Sometimes the inflammation is great, with loss of tissue and flow of pus. And then the name is appropriate; for pyorrhea means "pus flow." But whether little or great, the inflammatory process is all one. Under given conditions it follows a given course just as it would elsewhere in the body. The beginning forecasts the end, unless proper remedies are applied. Names more accurate than "pyorrhea" have been given it and should "stick." But somehow they do not. We shall herein use the common term, "pyorrhea."

The question of the constitutional causes of pyorrhea has been much discussed, and it is not the writer's intention to review the ground over which the battle has waged so valiantly. He has no doubt that constitutional causes sometimes play an important part in establishing inflammatory conditions of the tissues surrounding the teeth. Any derangement which lowers the resisting power of the body tissues may act as such a cause.

The writer questions whether constitutional conditions alone ever bring about pyorrhea. In any event, the dentist will find a wide field for activity in so freeing the mouth of local exciting causes that the proper health of the oral tissues can be maintained. The mere putting of the mouth into proper condition will often result in an apparent cure, even when constitutional conditions are unfavorable. But the writer has never known treatment of the constitutional conditions to produce even an apparent cure if the treatment of local conditions was not properly conducted.

The local causes which produce or help to produce pyorrhea may be summarized under the following heads:—deposits, mal-occlusion and faulty operative procedure.

As the study of deposits, their nature and effects forms much the largest item in the papers dealing with the local causes, it may be well to dispose of mal-occlusion and faulty operative procedures first.

MAL-OCCLUSION OF THE TEETH

It was once thought that mal-occlusions of the teeth interested only the orthodontist, but with the advance of professional knowledge it is seen that they interest all dentists. For if the mechanics exhibited by the relations of one tooth to another immediately adjoining it are worthy of admiration, the relations between teeth opposed to each other are still more wonderful. Each tooth sits in a bony socket having rather frail walls. It extends a considerable distance out of this

socket, and at the point of its furthest extension sustains heavy and complicated stress. When the tooth is in proper occlusion with the opposing teeth, this stress is so distributed by the occlusal planes or incisal edges, that no disturbance of the supporting tissues follows. But when the tooth enters a position of mal-occlusion, these very forces which before supported it in health, work it injury.

The tooth in mal-occlusion is generally the victim of undue lateral stress, often great in amount and frequently repeated. The effect on

ILL. No. 1.—Extensive mal-occlusion, due to irregular eruption, aggravated by extractions. The gums about the upper central and laterals were highly inflamed, with fistulous openings above both centrals. Deep pockets about centrals. Gums about lower incisors showed marked inflammation. Deep pockets about roots; process extensively destroyed; great amount of pus.

the lateral walls of the alveolus is felt first by the peridental membrane and then by the osseous tissues. A common result is the partial or complete absorption of the lateral wall of the alveolus. A very common illustration of mal-occlusion, with resulting absorption of a lateral wall of the alveolus, may be found in the lower second molar when the first molar has been lost. This result is shown in illustration No. 4, page 66. A tooth in normal occlusion may be placed in mal-occlusion by an improperly articulated filling or crown. The effects on the tooth are then identical with those in the mal-occlusion referred to above.

The effects of mal-occlusion are not confined to the lateral stress which a tooth receives. There is a form of mal-occlusion known as

"excessive occlusion," in which a tooth receives more than a normal amount of opposing stress. This subjects the peridental membrane to undue pressure. The effects of this pressure are seen in an inflammation of the peridental membrane. The relations between the presence of such an inflammation and the presence of deposits on the tooth in mal-occlusion will be discussed later.

ILL. No. 2.—The upper cuspid is being driven into further mal-occlusion. The effect of this driving is to inflame the soft tissues about it and to cause the beginnings of pocket formation. This is the first stage of pyorrhea. The lower bicuspids exhibited more advanced stages of the same condition.

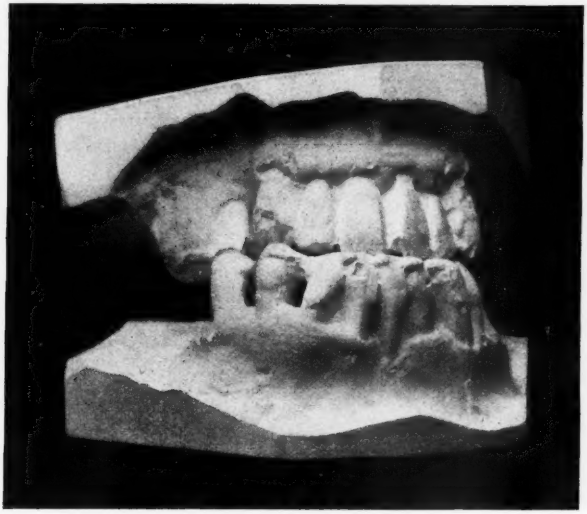
Let it suffice for the present to say that teeth which have been free from deposits on the root when in normal occlusion, generally exhibit such deposits soon after the establishment of mal-occlusion.

FAULTY OPERATIVE PROCEDURES

It may seem strange that operative procedures should be listed as a cause of pyorrhea, but one does not go far in the treatment of such conditions without learning that such procedures are a most important cause. A perception of the importance of proper restorations of decayed or missing teeth, will help many a dentist to develop that skill and patience so essential to such restorations. For he will see that much more than the mere restoration of a tooth has been committed to him, and that by his observation of certain points, the health of the

mouth will be conserved, while by neglect of them, conditions much more serious than those he undertook to remedy may be reduced.

Attention has been called to the beautiful exhibition of mechanics which nature gives in the occlusal planes of the teeth and their interrelations. We have also seen that by a faulty restoration of these



ILL. NO. 3.—To complete the conception of the value of articulation in this connection, the rough model of this case after treatment is here shown, somewhat out of its normal relation to the text. The teeth have been put into such relation that no tooth is here subjected to excessive occlusion. They are held thus by permanent retainers which are roughly shown on the models. Photographs of the patient will be shown later.

planes a tooth is placed in mal-occlusion, and inflammation of the peridental membrane is induced. The mechanics of the approximal surfaces of adjoining teeth are not less fine than those of the occlusal surfaces, nor is correct restoration of any lost approximal surfaces less important than correct restoration of lost occlusal surfaces. This will be best seen from a short examination of the approximal surface of a bicuspid or molar.

If one begins his examination of such surfaces at the gum line, he will find the surface bulging anteriorly or posteriorly as it passes toward the occlusal margin. This bulging will not be uniform in character. It will be so pronounced in certain portions of the surface that by the time the occlusal third of the tooth is reached, a distinct eminence has been formed, with curved sides which slope away from it to pass into the buccal and labial surfaces. This eminence is known as

"the contact point," because it is the part of the approximal surface which rests in contact with the adjoining tooth, in the perfect denture.

There are few words in dental literature too strong to express the importance of this contact point to the preservation of the interdental papilla and of the tooth itself. In the perfect tooth, nature makes that contact point prominent and relatively sharp, with wide openings of the approximal surfaces to buccal and lingual of it. The approximal surfaces, apically to the contact point, separate rapidly, leaving a considerable space. This space is the home of the interdental papilla. In perfect cases, the papilla fills the space between the approximal surfaces of the teeth up to the contact point and from that point slopes

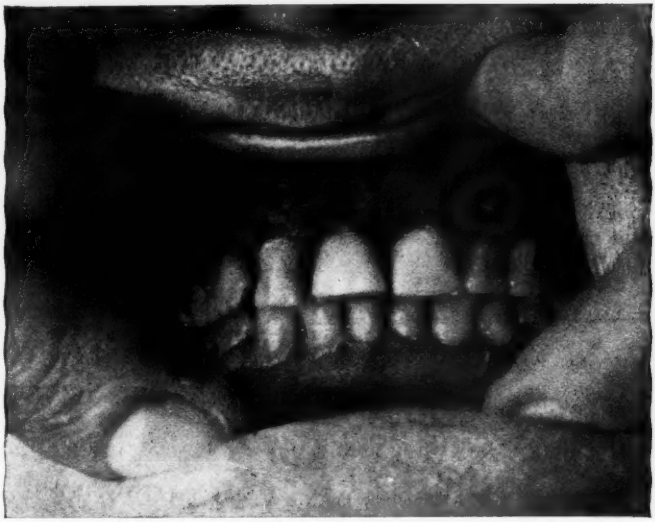
Ill. No. 4.—Radiograph, showing loss of first lower molar and destruction of process about the second molar as a result of mal-occlusion.

away palatally and buccally in such way that food is diverted from between the teeth and thrown into the cavity of the mouth. It is the purpose of the contact point to so divide food which passes it that it shall be capable of easy diversion by the interdental papilla. When these happy conditions obtain, the soft tissues and teeth themselves remain in health with little care from the dentist.

But when this ideal arrangement is lost, when the contact point is not properly formed and the embrasures are narrow, food passing the contact point is not sufficiently divided for the interdental papilla to be able to divert it. It crowds down into the interdental space and the effects are disastrous.

When the dentist is called on to restore an approximal surface of a tooth, he cannot have too clear a conception of these functions of the contact point, and of the necessity of restoring it if the tooth is really to be preserved. He will find in the restoration of a contact point of proper form, opportunity to exemplify the highest degree of skill he may possess.

It will not, however, be sufficient to have the contact point of proper form and in proper location. The filling or crown must be of such



Photograph from patient. The upper centrals have been crowned with porcelain. Beautiful adaptation of crowns to roots perfected with porcelain copings. When these crowns were set, the tissues about the roots were in healthy condition. As the result of the centrals being subjected to excessive occlusion, inflammation of the soft tissues occurred, and extended to the underlying bony tissues. It caused destruction of the bone, pocket formation and large amount of pus. This condition was spreading to the laterals when treatment began.

Mal-occlusion of cuspid. Inflammation began about it, became chronic and extended to involve lateral and central. Extensive destruction of process about cuspid, with fistulous opening from pericemental abscess; the pulp is vital. Inflammatory condition extending to involve adjoining teeth.

shape as will restore the natural form of the approximal surface of the tooth, to permit the preservation of the interdental papilla. And the filling or crown should pass into the surface of the root with such perfect smoothness as will not afford the slightest irritation to the soft tissues.

Only too often such is not the case. The filling or crown may present a perfect occlusal surface and even a contact point, but the repro-

ILL. No. 7.—Faulty adaptations of a cap crown to a tooth. The poorly adapted bend acted as a persistent irritant to the soft tissues about the root and induced inflammation, which resulted in destruction of the process.

ILL. No. 8 shows a similar crown and an approximal filling which was never finished. The excess of filling material, crowding on the interdental papilla caused inflammation, with resulting destruction of process. The placing of such a filling seals the death warrant of a tooth

duction of the approximal surface may be very poor and the edge of the crown or filling may be so imperfectly adapted to the tooth as to leave a margin which is a constant source of irritation. The pyorrhea worker is early impressed with the frequency of cases in which the adaptation of the crown or filling at the cervical margin is so poor that irritation of the soft tissues results. Some operators claim that in shell crowns at least, such faulty adaptation is present in much more than half of all cases. Some such adaptations are shown in illustrations Nos. 7 and 8.

(*The next article in this series is expected to appear in the March issue.*)

THE NEW MAGAZINE—ORAL HYGIENE

THE DENTAL DIGEST is pleased to welcome the new member of the dental magazine family. Its editor is not new to this work, nor does he lack fame in this field. The opinion of those who know him is that he will make a clever and readable magazine. The publishers are new in this field of endeavor, but that will not prevent their being successful. May the magazine become as popular and useful as they hope.—EDITOR.

THE NEW DENTISTRY

By Elbert Hubbard, East Aurora, N. Y.

Once upon a time at a certain East Side Variety Theater, on what is called Amateurs' Night, the manager stepped forth in "One" and addressed the audience thus:

"The charming young lady who is now about to entertain and delight you will do a terpsichorean melange. I have the honor to introduce to you Miss Violet Cummings."

Then tripped forth Miss Violet Cummings, aged forty-two, with mincing steps, spit curls and high ambitions. A voice from the gallery called, "This is not Miss Cummings; this is Miss Goings."

The name of Dentistry is Coming, not Going.

All over the United States in towns, villages and country, people are awakening to the truths of right living.

The care of the teeth is a matter of education.

A strong, able and independent mind can only go with the wholesome mouth.

Imperfect breathing, overeating, lack of exercise, mixed in with a little jealousy and hate, produces a very bad condition of the oral cavity.

These truths have long been known to dentists, but now they are being repeated in various forms by laymen in magazines and pulpits—for even the pulpit is awakening to the fact that to live now and here up to our highest and best brings a quick return of present good and is the best preparation for a life to come, if there is one.

If there is a heaven after this, it is wise and well to get used to it before we tackle it for a long stay.

The good dentist is a teacher as well as a mechanic.

He is also an artist and a lapidary.

He is a business man and also a professional man.

No man in the community should carry his head higher and feel greater pride in his business than the dentist.

The late Justice Harlan moaned the passing of the lawyer. He said, "We have no lawyers now. We only have attorneys for special interests, pleaders brought up to misconstrue the law to fit prejudices and persons."

Medicine is no longer considered a science. The materia medica of twenty years ago is absolutely obsolete, and a new one is not yet on the press.

And we find a new religious denomination that had a membership of a million people, getting along entirely without the aid of physicians, and the members thriving in mind, body and estate to a degree they never did before.

Yet Mrs. Eddy, personally, had faith in the dentist, and considered her dentist her friend, adviser and teacher.

Also, it is on record that she paid him a good, big, round fee to the extent of twice what his bill called for. Surely there must be something in Christian Science, even granting the overworked pleasantry that it is neither Christian nor scientific.

In passing, it is a somewhat paradoxical proposition that our Christian Science friends hold, for while not discussing the question of sanitation, unless to hold out flatly that nothing really matters at the last, yet they are very exact and methodical in the application of true, scientific living. Exercise, work, fresh air, kind thoughts, cleanliness and sunlight are all down on their program.

Christian Scientists are saved all right, even if their reasoning is rocky.

Not long ago I was entertained at the house of a Christian Scientist who had expended the modest sum of exactly two thousand dollars on his bathroom. It was a dream in porcelain, plate glass and enamel. And in a little cupboard sacred to tooth paste, vaseline and cold cream, I discovered a supply of dental floss. This was the last item to mark the man's superiority.

For my opinion is that the individual who has the dental-floss habit is well out on the highway to the celestial city of fine minds.

The point of this argument is that while other professions are being hotly pursued and harshly criticized, at this time when the world is being made over, the dentist is just coming into his own.

One thing I am sure of is this, the dentist has never charged enough heretofore to make his business really respectable.

In The Dental Digest some time ago I saw a story about a man who had filled up thirty-two cavities for a young woman and put her mouth in first-class shape. When a bill for $95.00 was sent to paterfamilias it caused this gentleman to throw himself into a cataleptic fit.

I think the case is exceptional.

The average business man now, in village or city, who has a growing daughter with a desire to have a clean mouth and goes to a dentist and has the task rightly done, would be grateful both to the girl and the dentist, and a hundred-dollar bill would be regarded as very reasonable recompense.

One hundred dollars a day in court is the average lawyer's fee,

and he works from ten until four, and often not very hard, either. If you get a specialist in the law you do not get off so easy.

Not one man out of five yet gives proper attention to his teeth. But as we grow in intelligence we will more and more respect the dentist. In ten years we will have twice as many dentists as we now have, and the best ones will make twice as much money as they now do.

The dentist, however, must make himself worthy of respect.

He must grow with his business and with the times. I cannot think of anything more pitiable than a static dentist.

The dentist should keep abreast of the new thought, and his mental attitude should reveal itself in his office furnishings and housekeeping.

I visit many dentists' offices and have on my list of friends dentists by the thousand.

For the most part, the dentist appreciates in his own person the necessity of cleanliness, order, system, and right living. This cannot be said of any other profession. I suppose in great degree it is caused by the fact that the dentist comes in such close, personal relation with his client, and he is forced into a "toothsomeness" on his own account that might never otherwise be.

Every dentist should be an outdoor man.

The very fact that he is kept so closely, and that he does his work in an aperture two inches square, should compel him to hold the average good by getting out under the open sky, and looking at life in a big way, whenever possible. Tramps afield, work in the garden, golf, the open road and the blue sky should be his.

I wish every dentist doing business in the town or city had a farm a few miles out.

This wish, I know, will cause some of the profession to smile; but I prophesy the day will come when the dentist will have enough money so as to be a stockman and a farmer.

And he will be a more effective dentist for so doing.

I like a dentist who does not have newspapers thrown around his office. The newspaper stands for the cheap and the tawdry. News in a newspaper only means bad news. Newspapers are filled with tales of woe, distress, accident, flood, crime and grime.

Let the customer supply his own newspaper or go without and be the gainer.

The literature on a dentist's table should be beautiful, something inspiring, something that tends to give peace and poise.

Last week, in a dentist's waiting-room in a western city, I saw copies of *Country Life, The Craftsman, The House Beautiful, The Fra,* and *The World's Work.*

Just these and none other.

The cheap magazines, bordering on the sensational and slanderous, were eliminated.

This man's periodicals reflected himself.

They stood for beauty, dignity, health, intellect, order, system, service.

I was informed that this dentist was a member of the School Board, President of the local Chautauqua Circle, a trustee of the Public Library, and also a member of the Park Commission.

I was not surprised.

It had taken fifteen years for him to work up to this position in society; but without striving for social honors or money, both money and honors had gravitated to him far beyond the average.

He was respected and beloved by the best.

Perhaps he had a few enemies. If so, these were only proof that he was doing something, saying something and being something; for the recipe for not having enemies is to do nothing, be nothing, say nothing.

This dentist had educated himself, and, incidentally, educated the city. I do not think he had deferred to the whims or superstitions of anybody. He was courteous, but he was frank. Withal he had good health and was full of good cheer, and it seemed to me he was pretty nearly what every dentist should be.

Of course, we do not want any man to pattern after another, or do a certain thing because he is advised to do it, but he should do the thing that gives him the most pleasure and satisfaction. The object of life is happiness; and after trying everything in the world, mankind now realizes that happiness comes only from human service, and that the reward for good work is not rest nor rust but more work.

We get our rest by change.

Dentistry is a most exacting profession.

The slipshod and inefficient quickly drop out of the game. Only a man of persistency, patience and poise can succeed. But his reward is great in that he has the satisfaction of having benefited humanity, and instinctively every good thing in life will gravitate to such an one.

He will have all the money he needs—even if not all he wants.

So the argument is for a dentist to be a teacher, a learner, a worker, a business man, a sportsman, a gentleman, and an athlete, all in one. Is it not worth the while?

TRUE words are not fine; fine words are not true.—From "How to be Great," by Lao Tzu. LAO.

INVESTMENTS FOR CASTING MOULDS

By J. G. Lane, D.D.S., Philadelphia, Pa.

One of the most important problems in the casting process today is that of obtaining a casting that is, in size, satisfactorily like the pattern over which the mould was made. Into this problem two factors enter very prominently. One is that unyielding and uncontrollable laws of physics that "heat expands and a reduction of temperature contracts." The fact that gold expands on being heated and contracts in cooling is beyond dispute; and also the fact that we cannot prevent the normal shrinkage of gold is acknowledged. The other important factor that asserts itself very forcefully is the physical property of investment compounds.

The requirements of an ideal investment compound are pretty clearly set forth by Dr. L. W. Strycker in the *Dental Digest* for November, 1910. The gist of his six requirements is: "An ideal investment material is a compound in which we can make smooth castings by the direct pattern method, that are in size and detail exact replicas of the wax pattern over which the mould was made."

Such conditions would indeed be ideal; and all are easily obtainable except the first requirement mentioned by Dr. Strycker, viz: "It (an investment compound) should, when heated to 1200 or 1300° Fahrenheit, expand enough to compensate for the shrinkage of the gold when cast." This one requirement seems to have practically all the load to carry and dispose of, and we will therefore review the casting process in detail from this standpoint.

Strange as it may seem, that same inflexible law of physics that we have referred to may or may not apply to the physical properties of investment compounds. These are usually made up of quite a number of ingredients; all of which, *per se,* undergo physical changes, and many of which fail to return to their normal condition when again at normal temperature. This is particularly the case with plaster of Paris, which is the binder in our investment compounds. As we all know, plaster "burns smaller" when heated, the same as dried bricks and dried pieces of pottery burn smaller when fired. Kaolin—an ingredient sometimes suggested for investment compounds—also undergoes quite a reduction in size if its temperature be raised to a high degree and then lowered; even powdered asbestos possesses this physical property to a remarkable degree. Various other materials used as ingredients are not affected in this way; or at least not nearly to such an extreme extent. Among such might be classed pumice,

sand, graphite, finely pulverized fire brick, sodium silicate and others. It might seem that some of these various materials could be compounded in such proportions that the resultant mix would be constant in its dimensions, *i. e.*, on being heated expand an amount exactly equal to the contraction that would take place in cooling; thus returning to its original dimension. This same thing has been done in compounding alloys for amalgams; but in formulating investment compounds we have a different proposition to handle. No one of the approximately constant materials we use has as much expansion with a given rise in temperature as gold; we, therefore, have no excess to work on. These same materials when mixed with a suitable binder will have less expansion on being heated because of the negative effect of the binder. The highest possible rise in temperature to which we dare subject an investment will not cause quite enough expansion to counteract subsequent contraction of gold that is cast into it. Some of the investment materials sold at the present time will *very nearly* neutralize the result; and others fall far short of reaching the desired size.

It is a slow procedure to accurately test out an investment compound. We can easily "lump-sum" an ocular demonstration that will put some of the present day investment compounds out of the race before resorting to fine measurements. This ocular test consists in looking for a line of space that may or may not occur between the investment and flask when heated to redness. Should a line of space be present at the point mentioned, this at once is proof positive that the investment has "burned smaller," or at least did not expand as much as the metal flask that contains it. This condition would be sufficient evidence to cause one to cast aside such an investment as falling far short of the purpose for which it was intended, viz.: getting a casting satisfactorily near the size of the pattern.

An accurate test can be made by flasking micrometered wax patterns, casting in the moulds thus made, and then taking micrometer measurements of the castings. It will be noticed that neither the ocular test nor the micrometer test gives recognition to any physical changes that may occur in the investment after it is heated to redness. The casting is made as soon as the flask has become red hot; and, therefore, any changes that might occur in the investment by sustained temperature or in cooling down would be of no consequence.

With an idea of determining the comparative working properties and merits of various investment compounds, we some time ago conducted a series of tests for that purpose. In conducting these tests the aim was to have all conditions as nearly constant as possible save one; and that one was, a different investment compound for each test. In

each and every test, the mould was made over a carefully micrometered wax pattern of cylindrical form, having a linear measurement of .5000″ (half an inch) and a diameter of .120″ (almost 1/8″), 5 dwt. of 24 k. gold used, cast through a sprue opening, having a diameter of .070″, a sustained air pressure of 25 lbs. per square inch was used, the temperature of the flask red hot, and the gold heated white hot at the moment of casting. Note, that in such a series of tests all the foregoing conditions we have enumerated save the latter two could easily be made constant. The last one of the two exceptions means nothing for or against the accuracy of the findings, because the gold will begin its uncontrollable shrinkage at the same temperature regardless of what its casting temperature was. Thus the exceptions to absolute constancy are reduced to one, viz: the temperature of the flask at the moment of casting. And even in this, one could not readily go far wrong except by gross carelessness. The color had to be watched in much the same fashion as a steel worker watches the color of instruments while he tempers them. For all practical purposes we may assume constancy throughout. Therefore, in the completed tests the only varying condition was the physical property of the different investment compounds used.

The final result as copied from our notes of the tests is as follows:

Investment	*Pattern*	*Casting*	*Loss, %*
L. D. Caulk's	.5000″	.4993″	.14 of 1%
S. S. White's	.5000″	.4991″	.18 of 1%
I. D. L.	.5000″	.4972″	.56 of 1%
Standard	.5000″	.4970″	.60 of 1%
Consolidated	.5000″	.4958″	.84 of 1%
Peck's	.5000″	.4957″	.86 of 1%
Terra Plastica	.5000″	.4936″	1.28%

It will be observed that this method of testing follows exactly the line of technique that we follow in our regular work; and the findings are not merely statements of measurements and figures, but are statements of *facts* as they obtain in our daily practice.

The highest measurement shown records a loss of approximately 1/7 of 1 per cent. by shrinkage. The investment compound represented in this particular test shows no trace of a line of space between the flask and its contents when heated to redness. In other words the investment expanded as much as the flask which contained it. It could do no more.

In the publication referred to, Dr. Strycker's table of tests places this same investment compound at the top of the column as having the greatest expansion. This is as it should be. It is unfortunate

that Dr. Strycker's table of tests does not give figures stating definite results. Also unfortunate that he does not give the technique he employed to obtain the findings in his table. The other extreme recorded in our table shows a loss of 1.28 per cent. by shrinkage. In any inlay this means a misfit; and in a step cavity that represents part of the proximo-occlusal surface of a bicuspid or molar, this much shrinkage causes a very decided misfit; so much so that such an inlay would, as a tooth saver, be little better than an entire filling of the same kind of cement that was used to set the inlay.

Shrinkage is equal in all directions, and in direct proportion to the length of material involved.

Inlays for simple cavities in any one surface of a tooth will not show as much evidence of excessive shrinkage as will those that are more complex; and the more complex cavities will show the effect of shrinkage vastly more at some points around the margin than at others; particularly so are the proximo-occlusal step cavities in which the step portion is rather shallow, and the proximal portion long. In these the proximal portion will not nearly reach its destination and set firmly on the cervical floor of the cavity; instead there will be a wide space at this point. It is an acknowledged fact that the weakest part of a gold inlay operation is the marginal adaptation. This weak part may be strengthened by reducing the surface cement line. The surface cement line can be reduced by accuracy of adaptation. The last few statements may seem to be on another subject. And if we have wandered away we come suddenly back when we realize that, having a correct pattern, *the* fundamental place to look about for a means toward final accuracy of adaptation is in the physical properties and integrity of the investment compound we are using.

In our tests, we have made no detailed record of the physical properties of investments other than those which had to do with giving a smooth casting of a proper size and definition. All the other conditions are of minor importance; and in most all the investment compounds tried, seem to answer the purpose. "Standard," on account of its coarseness, had a tendency to give a rougher surface than the others at the pressure used. If, however, the pressure was reduced somewhat a smoother surface was obtained; but very much of a reduction in pressure meant risk in obtaining proper definition.

In contradistinction to the test and findings that we have given and explained in detail, we made other tests of the same materials, by the same technique, and under exactly the same conditions, except that in each case we allowed the prepared flask to cool down to room temperature after having burned the wax and carbon out, and before

casting. We cannot say this was casting in a cold mould, but as nearly that as we could get. The only rise in temperature would be that gotten from a tiny oxy-hydrogen flame of possibly twenty seconds' duration. The flask might be said to be lukewarm. In each test the contraction was vastly greater than when casting in a red-hot flask. The loss by shrinkage as shown by testing in this manner for the various investments in the order named in our table is:

L. D. Caulk's	.88 of 1%
S. S. White's	.92 of 1%
I. D. L.	1.30%
Standard	1.34%
Consolidated	1.68%
Peck's	1.60%
Terra Plastica	1.95%

The importance of casting in a hot mould cannot be over-estimated. Figures show us to what extent the accuracy of adaptation is improved, and experience has taught us that a hot mould is stronger than one that has been heated and allowed to cool.

Let us return to the line of space that some investment compounds allow to occur just inside the flask when heated. We have already explained what it means in regard to the size of the casting. It also means that such an investment is not supported by the flask, and will likely split under even a very mild pressure in casting, and thus produce a casting with "fins." Also, that the pressure used (except centrifugal pressure) is given an opportunity to follow this line of space and avoid its real purpose.

Inasmuch as we have quoted Dr. Strycker various times in this article, we now take the liberty of reviewing briefly some of the statements in the DIGEST for November and December, 1910. It is difficult to make the reductions in December DIGEST agree with the tables given in the November number. According to the table given, the order of expansion—by which is meant the ability of an investment to produce a casting as nearly as possible the size of the pattern—is (1) Caulk's, (2) Pelton & Crane's, (3) I. D. L., (4) Consolidated, (5) S. S. White's, (6) Standard, and (7) Terra Plastica. Quoting from page 736: "Consolidated Investment compound . . . is nearer perfection in expansion, being fourth in the table; that great redeeming feature places the Consolidated investment compound second best." Quoting again, *ibid:* "S. S. White's, I. D. L., and Pelton & Crane's investments are about on a par, . . . the first mentioned has less expansion than the others, and would be be an ideal investment if it had . . . a little more expansion." Quoting again, *ibid:* "I. D. L. investment . . . shows about the same amount of expansion as the S. S.

White's." Quoting again, *ibid:* "Pelton & Crane's investment the expansion is too great."

We will notice that according to Dr. Strycker's deductions the expansion of Consolidated is *nearly* right, "being fourth in the table." Also that S. S. White's "needs a little more expansion." It is placed fifth on the list. Also that I. D. L. has "about the same amount of expansion as S. S. White's," and yet it is placed third on the list. Quoting again, *ibid:* "The Standard occupies first place at the present time, and it can be improved by giving it more expansion." Standard is sixth on this list, or next to the one having the least possibility of expansion; or sixth in the possibility of getting a casting of proper size and adaptation. The five points of superiority named are all of minor importance, and all combined are of far less importance than getting an inlay the right size for the cavity. As shown by our table of micrometric measurements, we have *no* investment compounds that expand too much. The one having the most expansion does not expand quite enough as we have shown.

We cannot comprehend why Dr. Strycker selects as his ideal an investment compound in which the possibility of expansion is nowhere near conversely equal to the normal contraction of gold in cooling. Nor can we understand why he selects as his ideal an investment compound which according to his table is at least sixth place remote from meeting his ideal as expressed in, "requirement No. 1" in the November DIGEST.

Let us quote again, *ibid:* "If you carried out the little experiment in November DIGEST you will have noticed that this investment (Caulk's) expanded slightly above the ring;" the experiment referred to consists in filling a ring of seamless brass tubing with the compound in question, and heating it. Inasmuch as we have for three years used this compound and another having the same formula, we have done exactly this same thing with the compound in question, probably various hundreds of times, using rings 1-1/8″ long cut from 1″ seamless brass tubing; and we must confess that we have never found the condition referred to by Dr. Strycker.

Quoting again, *ibid:* "Now if it expands to such an extent one way it must naturally expand inwardly." We believe this to be about the most *unnatural* thing that could occur. First because such a physical action is diametrically opposed to fixed laws of physics, and therefore could not occur; and second, because we have used this compound so many times, and have made micrometric measurements of results so frequently that we know it does *not* occur.

As we have stated in this communication, we have *no* investment

compounds that expand too much. But we have compounds that expand as much as the flask that contains them. Before we can do anything else in the investment expansion line, we will have to work out an alloy or metal for flasks and gain more expansion there. We referred briefly to this in a paper read at Cambridge Springs, Penn., in May, 1910, and at Rangley, Maine, in June of the same year.

According to standard works in the Chemico-Physical Laboratory of the U. of P. it is an exceedingly difficult matter to find a metal, or alloy having a coefficient of expansion sufficiently near, or above, that of gold to meet a requirement of this kind. An aluminum bronze alloy having a very high percentage of copper comes nearest. We believe, however, that getting a higher rate of expansion of investments and flasks than we now have would likely complicate matters unnecessarily. If it is necessary to have a casting with an absolute zero measurement (or greater than that), expand the pattern by flasking it in a warm investment according to the technique of Dr. Van Horn.

No. 763 West 40th Street.

THE ART OF DENTAL CASTING

THE preparations of some important illustrations for Dr. Strycker's next paper made it advisable to defer presenting that paper until the March issue.

THE GOSPEL OF ORAL HYGIENE IS SPREADING

THE *Delineator* for January, 1911, contains an excellent illustrated article under the heading: "Why Some of Us Are Homely," by Louise Scudday.

This article takes up in a popular way, but apparently with much accuracy, those defects which appear in youth and make the adult unpresentable. While it does not take up the matter of decayed teeth in detail, it does take up the matter of correct positions for the teeth and their effects on the facial expression, premature extractions, the worth of the teeth and value of the efforts for their preservation, and the effects of mouth breathing. All these subjects are treated in such a way as to make them readily understandable by parents.

Dentists, who wish to further the cause of dental education, will do well to call the attention of parents to this article.

G. W. C.

ARTIFICIAL TOOTH SHADES AND MOULDS USED IN QUEBEC

By Dr. Alcide L. LaRose, Maisonneuve, P. Q.

In perusing the last issue of The Dental Digest I was most interested by Dr. L. R. Pond's article on Tooth Shades and Moulds, and it brought me to look over my books to find the moulds and shades I most use. As Dr. Pond, I believe only a few shades and moulds are necessary in one's successful practice, but a different country and different people mean assuredly different moulds and shades.

I believe it would interest many of your readers should you find it worth while for curiosity's sake, to give the following table alongside with the one given you by Dr. Pond:

Last 45 upper sets made on which I used the anteriors of

Molars	Quantity
5	2
6	2
14	2
15	7
16	1
17	3
18	17
19	3
21	1
40	1
42	3
44	1
51	1
52	1
	45

Shades	Quantity
1	4
2	3
3	1
4	22
5	2
6	4
7	3
8	1
9	1
10	4
	45

I keep on each patient's ledger sheet the number of the mould used, either upper or lower, also the shades. I use with great satisfaction anatomical moulds No. 97 and always a shade darker than the incisives; this I find gives me very artistic effects.

EXTRACTED TEETH WANTED

As materials for some studies I am making for the benefit of the profession, I want a large number of natural upper centrals, laterals and cuspids, with crowns in good condition. If you can send me any will you please do so? I will gladly return postage.

George Wood Clapp,
47 West 42d Street.

THE GREATEST THING IN ORAL HYGIENE

By George Wood Clapp, D.D.S., New York

(*Continued from January issue*)

When the oral hygiene work was well under way in Cleveland, and there was something definite for the National Committee to nationalize, the problem of securing the funds which should make possible the dissemination of the knowledge to be acquired assumed an acute stage. It is sometimes true, in fact, as well as in fiction, that it is darkest just before dawn. And just when the National Committee seemed likely to fail of its desires because of lack of money a way opened.

The chairman of the National Committee heard that different dental manufacturers had considered whether some plan of campaign could not be adopted which would increase the number of paying patients who visit dental offices.

A number of representative dental manufacturers had considered such a plan, but nothing had been done about it. It had not even taken tangible shape. I know whereof I speak when I say that no concrete campaign had been mapped out, no money had been raised and no activities had been taken in the work of such a campaign. Whoever informed the National Committee seems to have exceeded the exact facts.

Those who were studying the subject, however, found that the time was ripe for public education of the sort. New views of the importance of health, of the relations of health of body to efficiency of mind, and of parental, civic and scholastic responsibilities for bodily health are making themselves felt. These investigators conferred mostly with leading minds in other fields than dentistry. Everywhere they met with attentive courtesy, with eager receptiveness, and with assurances of interest and possible coöperation.

When the National Oral Hygiene Committee heard that the dental manufacturers had considered this subject, it invited a representative manufacturer to be present at its meeting in November, 1909, and listen to the discussions of the committee. The manufacturer attended the meeting of the National Committee, and invited a representative of the Committee to appear before the Manufacturers' Club at its meeting in December, 1909.

The Chairman of the National Committee on Oral Hygiene ap-

peared before the Manufacturers' Club at Baltimore in December, 1909, and told the story of what had been done and was then doing in Cleveland. He showed that the work under way was unique in character, that it contained the germ of a great movement, and that the knowledge to be obtained was of national interest. He showed also that if the National Committee could secure the funds to carry on its campaign and to collect, tabulate and circulate the information which would result; if it could be put into position to help wisely all communities where similar movements were to be started, it could perform a service of the greatest value to the dental profession and to the public at large. He asked for financial assistance to make the work possible.

Among the members of the Manufacturers' Club are several who have practised dentistry with success, and who are peculiarly well informed on questions relating to the welfare of the profession. A committee composed in great part of such men was appointed to consider the presentation of the Chairman of the National Committee on Oral Hygiene and his request for financial support.

The Committee considered most carefully the various aspects of the question, as presented. Its reports approved the work being carried on as, in its opinion, of great public and professional value, and it recommended that the Club support the work by placing at the disposal of the representative to whom it had listened the sum of three thousand dollars. This money was not to be turned over to the National Committee, but bills which it might incur in the wise conduct of its campaign were to be honored to that amount.

The purpose for which the Manufacturers' Committee recommended the appropriation of this money was that the Committee on Oral Hygiene of The National Dental Association should be enabled to carry forward its logical activities until the next National Meeting in July, 1910, that ten years of thought and planning and dreaming should be crowned by some actual achievement.

When the Club heard the report of its Committee general discussion followed. This discussion was most interesting to one who had frequently heard the manufacturers referred to in terms of either faint praise or actual condemnation. Little was said about the benefit to the manufacturers. As business men they knew that would come in time. And they were willing to wait until the benefit to the dental profession brought its inevitable benefits to all who serve the profession.

It was believed that by nationalizing the work planned in Cleveland, a showing could be made which would awaken every dentist as

to the possibilities of Community Oral Hygiene. It was hoped also that plans might result which would harmonize the efforts being made in several localities to start this work, and bring all workers into one great, wise plan, which should be most likely to insure final success for all such enterprises.

The argument turned wholly on the opportunity to assist a really great cause. The resulting benefits to the public and nation were referred to by more than one speaker. The benefits which would result to the dental profession from the awakening of the public to its own needs, formed an important part of more than one comment. And finally, after having made the three following conditions, the Club voted that its Committee should honor such bills as were approved by the representative who appeared before them to the extent of three thousand dollars.* The conditions were as follows:

* It may interest some to anticipate far enough to say that this sum never left the hands of the Committee of The Dental Manufacturers' Club. The National Committee dealt with reputable business concerns; the bills of the concerns were approved by the National Committee, and the money was paid by the Manufacturers' Committee directly to the business houses to which it was due. This precaution, perhaps wholly unnecessary, was taken so that when the story was being told, as it is told here, every detail of every transaction could be laid before the profession. With this method in force there was no opportunity for the National Committee to handle any of the money, and even the most carping critic could find no ground on which to say "They got theirs."

1. That the campaign should follow the outline presented to the Club.

2. That it should be regarded as the campaign of the dental profession for the profession and by the profession. The Club's Committee, however, was to hold any commercial knowledge or facilities it possessed at the demand of the National Committee of Oral Hygiene.

3. That no manufacturer had any individual part in the campaign or was to receive any individual credit. And that, so far as possible, the manufacturers were to remain in the background, absolutely without publicity.

Condition number three did not mean that the action of the manufacturers was secret or should remain unknown. It meant that this was not a commercial campaign, and that no manufacturer should receive any publicity from it.

In other words, there was to be no advertising.

It had been planned to take up the work of the National Committee immediately; that is, in December, 1909, but the serious illness of the Chairman of that Committee made that impossible, and

indeed bade fair to indefinitely postpone the work. However, as much was done as lay within human power, and on March 18, 1910, the campaign for Community Oral Hygiene was opened in Cleveland.

The very first step was such as to lift the campaign from the narrow channels in which activities of that sort had previously run. Cleveland possesses a broad-minded Board of Education. By the consent of that Board much had already been done and opportunities to do more were opened. And it was fitting that at the opening of the campaign, which will one day be bigger than any of us realize, the ceremonies should be supported and participated in by the Board of Education.

In the morning six clinics, the materials for which had been loaned to the National Committee by individual manufacturers, were dedicated to the service of the school children of Cleveland and the education of both dentists and public everywhere. In the afternoon 2,100 school teachers, under pay by the Board of Education, listened to instructive and inspiring addresses on the subject of oral hygiene. In the evening an audience of about 1,500 listened to professional addresses on the same theme.

And then those of us who did not live in Cleveland and did not have to do any of the real work, came away and said, "That was a magnificent opening. It will be a wonderful campaign." The members of the Cleveland Dental Society took up the noble burden they had assumed, and affairs settled down to the hardest task of all, the working out in actual achievement of the things that had been planned.

It is the common soldier who wins the battle, who is, in our slang parlance, "the man behind the gun." And it is the members of the Cleveland Dental Society who made possible the inception of this campaign, who have borne its heat and burden and who have served where work was greatest and praise was least. Some of them are famous; some are not. Some see their names in print every once in a while; some but rarely. But in honor of each man who agreed to give of his time or his money to this public work, the names that appeared on that agreement are here printed. Some day we shall look back on these men as pioneers in a great work.

It is much easier to plan or to applaud than to do the thing planned. And more people are willing to work at the planning and promising than can be depended on to put their shoulders to the wheel when the load is heavy, the hill long and there is no more breath left for shouting nor any band to play. There is a fascination about planning. The imagination plays its part and paints such pictures on the canvas of

the mind that one hardly thinks of tiring. And planning brings honor and praise. There are few who can do it well. And distinction sweetens the task for them. But when the plans are laid, when the great meeting is over and the audience is gone, many are they who feel like the housewife when she said, "I've washed the porcelain dishes. Let us leave the skillets till to-morrow." And so they go away leaving only the faithful few to "do the skillets." But those few have

MEMBERS OF THE CLEVELAND DENTAL SOCIETY

Ackler, Frank
Allen, S. W.
Ambler, H. L.
Armstrong, R. J.
Baldwin, C. R.
Baldwin, G. T.
Barnes, Henry
Barnes, Varney
Barrett, Frank
Belden, R. E.
Belford, E. E.
Bell, J. R.
Bentley, L. W.
Bertsch, Roy
Bishop, G. E.
Bissell, W. D.
Brewster, W. R.
Brown, A. I.
Brown, C. A.
Brown, I. W.
Burt, C. E.
Butler, C. R.
Camp, G. H.
Casto, F. M.
Chapin, W. F.
Chapman, F. F.
Coates, J. A.
Culp, W. E.
Culver, J. W.
Dewey, S. B.
Dinsmore, R. A.
Douttiel, G. W.
Ebersole, W. G.
Evans, R. P.
Ewald, J. S.
Fenton, M. E.
Frasier, J. W.
Gage, R. B.
Gerow, W. B.
Greene, G. W.
Griffis, A. L.
Haines, A. W.
Harrison, W. H.
Harvey, H. F.
Hasse, C. H.
Herrick, E. M.
Hill, T. J.
Hirsch, S. F.
Hisey, J. W.
Hock, W. K.
Hurd, C. E.
Husband, A. J.
Jackman, L. F.
Jackman, W. T.
Johnson, T. B.
Jungeman, J. W.
Kenyon, H. C.
Kelley, J. E.
Kindler, J. A.
Kline, J. C.
Krejci, L. A.
LaBarge, E. J.
Lindhorst, J. G.
Lindhorst, R. H.
Lodge, E. B.
Loughry, J. A.
Lovett, G. D.
Ludwick, F. L.
Lyman, I.
McCartney, F. M.
McDill, J. W.
McDonough, J. F.
Miles, F. L.
Mistr, J.
Moffett, H. E.
Moran, P. J.
Neff, M. D.
Newcomb, W. E.
Newton, J. T.
Nichols, W. A.
Norton, E. L.
Owens, J. R.
Palotay, J. F.
Patchin, E. L.
Pelton, L. F.
Pettibone, E. L.
Phelps, J. E.
Phillips, E. D.
Price, W. A.
Ralston, R.
Reisser, O. H.
Rogers, C. C.
Rogers, H. M.
Rosenwasser, H. B.
Rybak, J. F.
Sadler, R. E.
Saum, I. M.
Sayers, O. J.
Schneider, O. J.
Shannon, E. H.
Siddall, W. A.
Simpson, J. M.
Smith, W. P.
Spargur, F. J.
Stephan, J. F.
Stern, S. B.
Stillson, W. C.
Strong, H. F.
Suhr, R. A.
Sykes, W. S.
Terry, T. H.
Teter, C. K.
Teter, W. C.
Unger, R. C.
Van Doorn, J. W.
Van Tress, H. B.
Van Valkenburgh, H.
Walker, E. W.
Wasser, G. N.
Weaver, S. M.
Whitslar, W. H.
Wilson, G. H.
Wilson, H. R. C.
Womacka, E. A.
Woodbury, G. F.
Yahres, J. M.
Zavodsky, Frank
Ziegler, D. H.
Zincke, L. D.

the blood of heroes; and if it were not for them there would be few things done in this work-a-day world.

This article is already too long. In the next chapter we expect to take up the story of the Marion School Squad, and that "squad" is really the greatest thing in oral hygiene.

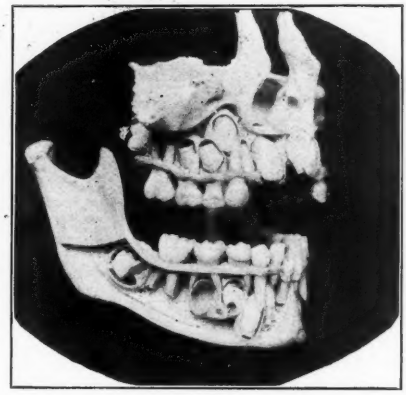
ORAL HYGIENE LECTURE TO CHILDREN

FROM 12 TO 13 YEARS OF AGE

(*Continued from January issue.*)

By George Wood Clapp, New York

It is like a house because it has a room and a living tenant inside. The wall of this tooth house is something like a house wall, but we know that that doesn't make any difference, because some house walls do not have any doors or windows. The walls of the tooth are much like the house wall. First, on the inside, comes a thick wall of dentine. This is like the frame and boards of the house. It gives strength and form and protection against heat and cold or acids. Outside of this wall comes an-



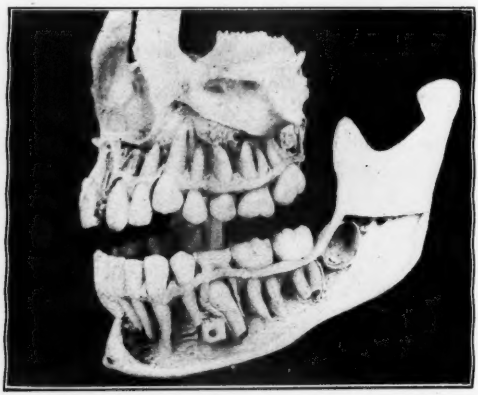
The positions of the temporary and permanent teeth at the age of six years.

other, made of enamel. This is like the weather boarding on the house wall. It helps in the protection and makes the tooth more beautiful in shape and color. It is the part of the tooth you see above the gum.

This slide shows us the tooth as a house. Here is the tenant. Some folks call it the nerve because it sometimes aches, but the dentist calls it the pulp, because it is a soft, pulpy mass. It is what made the tooth in the first place. It isn't put there to ache as long as it is protected. But when it is not well protected, when someone tries to break into its house and destroy it, it does just what you or I would do if someone were try-

ing to break into our house. We should send a message for help, and that is what the pulp does. It sends a message out along its tiny nerves through the end of the root to the larger nerve and then to the brain. But remember this: it will give you no trouble so long as you treat it well.

Here is a section of the pulp made larger so that we can see it and with all the tooth taken away. These little black lines are nerves and



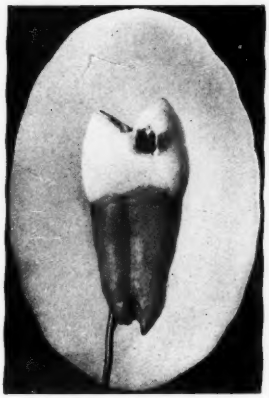
The positions of the permanent teeth at the age of thirteen years.

blood vessels. They extend out through a tiny opening in the end of the root of the tooth, and on up to the brain. They built the tooth around themselves; and they carry messages to the brain when some danger threatens the tooth. Every tooth in the head has in it the nerve that built it and that watches over it to guard it from danger. If it weren't for the nerves we should so neglect the teeth that in a short time most of us wouldn't have any.

A good many dangers threaten the teeth. Let us see what some of them are and what damage they do. On the grinding surfaces of the teeth are many hollows or grooves. These are very important in crushing the food. But it is not meant that food should be left in them. When we are through eating we should brush the food from these little hollows so that they will be clean. If we do not, this food ferments and acids are formed which sink into these little grooves and at the least imperfect place, these acids begin to eat away the tooth.

This slide shows a section of one of the molar teeth ground down to show one of the grooves and the little house where the nerve lives.

You will see that in this groove the acids have started the tooth to decay. And if you follow the pointer down the shaded cone, you will see that the disturbance has gone farther than just to the surface. It is getting pretty close to the nerve's little house. You may be sure the nerve knows about it. That is what it is there to watch for. And when the trouble first began, the nerve sent a message up to the little owner, saying, "Somebody is trying to break in. Come in and stop it." It wasn't a



Decay beginning at a contact point.

Decay beginning in a sulcus and extending downward toward pulp. Home of the pulp shown.

very strong message at first; just a twinge of toothache. And the boy probably put his hand up to his face and said "Ouch!" But it lasted only a minute, so he took his hand down and said, "It's all gone now," and forgot all about it. You see he didn't understand that the nerve was talking to him in the only language it has. It didn't want to hurt him any more than it had to, so it sent only a tiny warning. As he didn't pay any attention, it sent another; this time a little stronger. Now if he had had a wise papa and mamma they would have taken him to a good dentist right away and had the breaking-in stopped. And then he would have gotten no more messages from that tooth, because the nerve could live in peace.

But if he paid no attention, the trouble went on. The decay broke into the house of the tooth and killed the pulp. Maybe the boy had a good deal of toothache while the pulp was dying. It was the tooth's last appeal for help. And after the nerve is dead he is very likely to have much worse toothache than he did before, because the trouble spreads beyond the tooth and all the nerves in that part of the jaw send messages

for help. These messages are so strong that they cannot be neglected. For they bring utter misery, and one can do nothing else than attend to them and suffer. When you see a boy or girl with a face swollen from tooth trouble, you will know that he neglected the warnings of the little nerve in the tooth and that now the nerves of the jaw have not only sent in their warnings, but that they have called in the policemen of the blood to arrest the disturbers.

Do not think that teeth ache without cause. They do not. That is their only language. They send short, gentle messages first. They send long, hard ones only when the danger is great. They know more about

Decay on surface of tooth. Enamel affected. Dentine about to suffer attack.

Decay has progressed so far that the broken down enamel is being washed away.

it than you do. So when you get a toothache, even a little one, you will know that the tooth knows that some danger threatens it and that it is asking you as politely as it knows how for help. If you have the dentist give that help, all will be well. If you do not, there will surely be trouble.

One of the places where decay begins most often is on the sides of a tooth, between two teeth. You will see a picture of that here. The places between the teeth should be carefully cleaned every day.

When decay begins between two teeth, it does not always make a hole the very first thing. It attacks the enamel just as you see here (Fig. 13) and the most careful search by the dentist is necessary before the little spot can be found. Sometimes spots so small as this do not cause the pulp to send any messages. And the very wisest boys and girls I know of are some who have their parents take them to the dentist before messages come and have all such spots searched out and repaired.

They never get any messages from the nerves in their teeth. They never have to go without candy or ice cream because it hurts their teeth so. They never have to stay in from play because the cold gives them the toothache. They go through all those things without pain.

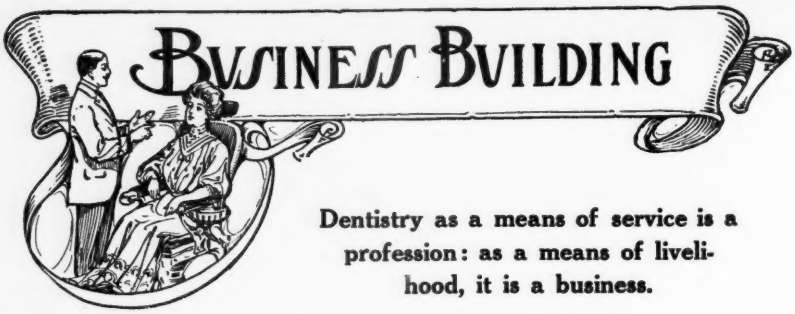
It was once thought that it was not worth while to have the dentist examine or fill the baby teeth. But now we know better. We know that the baby teeth must chew the food on which that little body is to grow and that they are just as important as the permanent teeth. So if you have any little brothers or sisters, you may tell your mammas and papas that if they want baby to be well and to grow as he should, they should

Food has crowded between the teeth so often that it has partly destroyed the gum and made a "meat hole." The consequences of this are sometimes more serious than from decay.

have the baby teeth looked after at least twice a year until they fall out. And then baby will not cry with toothache.

When decay on the side of the tooth has gone a little farther, the hole begins to form as we see it here and then it goes through just the same course as the hole on the top of the tooth. But there is another trouble from this kind of hole. Food crowds down between the teeth. It causes pain. And it helps to make the hole bigger. If you have any places where meat crowds in and stays, you should have them fixed, or some day that nerve will be compelled to send you a message that will make you feel sorry you didn't care for it before. Here is such a place between two teeth, and it is one of the most disagreeable things you can have. Perhaps your father or mother has a place like that. If so, advise them to have it attended to.

(*This article is expected to be continued in the March issue.*)



Dentistry as a means of service is a profession: as a means of livelihood, it is a business.

LOW-PRICED STOCKS

By Henry Hall, New York City

Wealth increases in the United States by leaps and bounds; and, in the dullest times, even in panic years, the activities of more than 90,000,000 of people and the fertility of the soil add a substantial increment to the national wealth. It is not practicable to state, exactly, the gain made by the whole people of the United States, annually, but it is enormous. Before the Civil War, a billion dollars a year was about the average rate of progress in real and personal property in this favored land. It now averages close to $5,000,000,000 a year.

These figures explain what was once a mystery. Stocks and bonds are poured forth into the investment markets annually, in prodigious quantities, by the hundreds of millions; and the wonder used to be where all the money came from to buy them. There is no longer any mystery on the subject. America is growing in surplus wealth, all the time. We cannot help growing, with our immense natural resources, our stimulating atmosphere, and our wide-awake, hustling and busy people. The intelligent, the skilful, the educated, add more to their means annually than others; but every one who is not a drone or a spendthrift adds something, in normal times. And there is always plenty of money for buying stocks and bonds. Strange as may the assertion seem, it is nevertheless true that this country is full of money to-day, even after a year of depression; and untold millions of surplus capital are ready for investment, the moment public confidence returns. And when that money does begin to come into the investment markets, this country will enjoy a lively, genuine, old-fashioned bull market, probably one of the most exciting it has ever known.

Without, at this moment, setting forth any particular view as to when that movement will begin, I believe that the time has come, nevertheless, for every man, who has a little surplus capital to invest, to

address himself to a consideration of what 1911 will probably bring forth, and to prepare himself to put his surplus money into such securities as promise a substantial increase in value before the end of the year. While this may seem like a suggestion that every one should enter upon a career of speculation, it is in reality not meant in that spirit. The corner-stone of safety in the investment of money is now, and has always been, to put it into something, which in the natural course of events must advance in value, sooner or later, and within a reasonable length of time, in spite of intermediate fluctuations. The future advance in value is the only thing which renders invested capital safe, although of course the speculative profit is also very desirable and helps amazingly in adding to one's means.

The man of moderate means seeks naturally to make his money go as far as possible, in the purchase of securities. Hence, low-priced stocks present an almost irresistible temptation to him. $1,000 invested in one bond, yielding 4½ per cent., which may advance perhaps $75 in value in the course of a year, seems a slow proposition, compared with $1,000 put into 200 shares of some $5 stock, which pays perhaps 10 per cent., and which stands a chance of going up three or four dollars a share, perhaps more, in the same length of time. I can readily understand, why so many of the wisest and most conservative men are collectively putting immense sums of money, every year, not into sedate, safe and slow moving securities, but into groups of low-priced shares, varying all the way from $3 to $15 each in price. If this is done with discretion, with the closest discrimination, and after careful investigation, and especially after consultation with some authority on the value of stocks, the results are usually most satisfactory; and I know of many men who have added materially to their capital in this branch of the field of investment.

The subject of low-priced stocks is so important, that this paper may be devoted to a consideration of them.

It is perfectly safe to say, that a vast number of low-priced stocks are practically worthless, for one reason or another. Most of them are those of mining companies, gold or copper. Some are those of oil corporations. In order to secure a wide distribution for the stocks, their par value was fixed at either $1, $5 or $10; and the promoters of some of them have taken advantage of a public craze for low-priced shares to float millions of dollars' worth of stocks, which are certain to prove a dead loss to their purchasers. On the other hand, there are some which have genuine investment and speculative value. These things go together in my opinion, for the reason already stated.

The man who buys a low-priced mining stock, even a dividend

payer, must bear one vital fact steadily in view. The assets of a mining company consist of its ore reserves and little else. There may be a $100,000 smelter on the property, with machine shops, reservoirs and other equipment, and these things could be sold for something; but dividends are payable only from the metals taken out of the earth below. When the ore is gone, the company is done. It must either buy other mining claims, at a large expense, involving perhaps a suspension of dividends and a heavy decline in the price of the stock, and the raising of new capital; or it must liquidate its affairs, and go out of business. History supplies plenty of instances of the abandonment of worked-out mines. The amount of a company's ore reserves should therefore always be ascertained, before a dollar is put into the stock of the corporation. If upon inquiry, a copper company is discovered to have enough raw material in sight to justify its existence for twenty or thirty years, then the company becomes simply a manufacturing and mercantile proposition, dependent for profits on low cost of production and on the general state of trade in the country.

With reference to copper companies, some of them know what their ore reserves are, and some do not. Officers of the deep mines, from which ore must be taken out from a depth of half a mile to a mile below the surface, can seldom state authoritatively just how long the mines are likely to last. Exploration work is being carried on constantly in all of them. The diamond drill is piercing the sides and ends of the drifts and tunnels, in every direction, but exploration work is expensive and in the deep mines it can be carried on only a short distance ahead of the actual workings. The so-called low-grade "porphyry" mines are in a different class. In them, the ore is extracted from the surface by steam-shovel operations; and it is practicable, at small expense, to strip the top covering off from a large area of land, and then by the drill and otherwise to ascertain pretty nearly how much ore there is on the property and its value. For instance, Utah Copper is one of the porphyry copper group of mines, in fact the pioneer in low-grade copper development, and is able to report ore reserves actually in sight, amounting to not less than 90,000,000 tons, sufficient for more than thirty years' extraction. A full business generation must pass before there will be any question of the future of Utah Copper.

How important is the subject of ore reserves, and what will happen when the length of life of a mine begins to be in doubt, have been strikingly illustrated twice during the past year in the Boston market. Granby Consolidated is a copper stock, par value $100 a share. The mines are located in British Columbia. There never has been any satisfactory statement as to ore reserves. The officers have stated vaguely

that they were large. No one cared much for the exact facts at first, because the company paid 12 per cent. in 1906, and 9 per cent. in 1907. But after that, the dividend was reduced to 4 per cent. A terrific decline took place in Granby shares in the early part of 1910, consequent upon the final discovery that ore reserves were giving out, and that the officers could not claim more than even a five years' supply in sight. From 111¼ a share in January the stock dropped little by little for a month or so, and then broke $42 a share in three days, going on down to $20, not far from which level it has ever since ranged.

Calumet and Arizona, a deep mine copper stock, par value $10, mines in Arizona, sold at $198 a share in 1907, because the company paid a dividend in that year of $16.50 a share. This mine was a rich one, the ore was supposed to be inexhaustible; but the ore turned poorer as the shafts went down; dividends were reduced to $4 a year; and people finally became panic-stricken from fear that the mine was about to give out entirely. The stock dropped in Boston from 103 to 44¾, and was only prevented from going much lower yet, by prompt negotiations for acquisition of a neighboring mine, known to have ample ore reserves.

These two incidents show very clearly what must actually happen in the case of any mining company, when its assets are near exhaustion. Actual extraction of all the ore means that the stock is then practically worth nothing.

In the case of a gold mining company, of which there are several of great importance in the United States, the difficulty as to ore reserves is increased. The ore or pure metal is found in rock, which occurs in narrow veins, not in massive deposits, and few companies can see more than four or five years ahead. The ore cannot be blocked out, as in a copper mine. But while the full amount of ore in any given property is always more or less in doubt, the purchaser of a gold company's shares should always make it his business to learn all that is known as to ore reserves before investing his money. Take the case of Goldfield Consolidated, whose mines in Nevada are believed to be one of the greatest gold properties in the world. The company owns over 380 acres of land, all of it streaked with gold-bearing rock and sulphides. Experts of acknowledged caution estimate the life of the property at more than twenty-five years. And yet, without spending an enormous amount of money in exploration, it has been impossible at any time to see, clearly and definitely, more than a four years' supply of ore ahead.

Goldfield Consolidated is typical of all the other gold mining companies. Some one profitable vein of ore is liable, after a year or two,

to give out entirely, or, on the other hand, it may run into a rich and profitable strike. New veins may be discovered. There is a much more glorious uncertainty about the future of a gold company, than in the case of a good copper mining enterprise. It is on this account, partly, that a gold company must pay and does pay such handsome dividends. Gold finds an instant market at $20 an ounce, in good times and in bad. In fact, in a panic year, there is nothing more desirable or more in demand than this precious metal. Dividends can be paid, therefore, in even the worst of business years, and they are paid. Not less than 20 per cent. a year on par value of the stock should be paid by a gold mining company every year, in order that the entire amount of the original investment may be returned to the stockholders in the course of a few years. When that is done, all later receipts are pure profits. Large dividends are always necessary in every form of business in which there is more than ordinary risk.

Tonopah Mining, a $1 gold stock, selling around $8 a share, now pays 150 per cent. on the par value of the stock. A man who pays $8 a share for the stock would have his entire investment returned to him in the next six years.

An instance of what may be done when a gold mining property or a copper property for that matter, reaches the end of its resources is supplied by that curious little curb stock, Mines Company of America. Par value of the shares was formerly $1, and the company paid at one time 16 per cent. a year. Yet, in 1909, the shares sold, most of the time, for only 50 cents each. I know of one substantial business man, engaged in large affairs, who did not own a share of stock of any kind (outside of his own corporation) except Mines Company of America, for which he paid $1 a share, and on which he was receiving 16 per cent. a year. He realized fully that the company was facing a prospect of going out of business; yet he could have afforded to see his stock become worthless, because the purchase price had already been returned to him in dividends. In July, 1910, the company adopted the only course to save itself from extinction. It more than quadrupled its capital stock, and with the new stock acquired large and profitable mines, and is once more believed to have an assured and possibly brilliant future. Par value of the shares has been increased to $10, and they have since sold for $6 a share. The company is now paying 9 per cent. a year.

Not all of the companies having low-priced shares have been as fortunately handled, however, as the last above referred to. Their promoters have not all been honest or they have not been competent, and

their history is a bewildering story of reorganizations, assessments on the stock, and even yet other reorganizations, the general result being that every owner of their shares has lost large sums of money in those alleged "securities." It is therefore just as essential to know who the officers and managers of a mining company are, and what is their general reputation for probity and ability, as it is to have a clear idea of the properties and ore reserves of the company.

It is of slight importance that some particular low-priced shares are cheap. They may be selling for 25 cents on the dollar, and may be dear at that. Honest and competent management; full and frank annual reports; and a definite knowledge as to ore reserves, are absolutely essential; and if there is any doubt about any of these matters, then there is sure to be an element of weakness somewhere, which would make the investment undesirable. An intending investor would do well to make careful inquiries before buying.

One of the most important movements now impending in the financial world is the merger of several great groups of copper companies into a few great corporations. Plans have been prepared for these mergers; but the bankers who are to finance and bring about the consolidations are unwilling to act, until after the coming anti-trust decisions by the U. S. Supreme Court. The whole financial world is eagerly and impatiently awaiting those decisions, hoping and expecting that the highest tribunal in the land will then make it perfectly clear what kind and form of corporations will hereafter be legal under the Sherman anti-trust law. It would be absurd to create several gigantic copper companies, now, only to find that they would have to be reorganized after the Supreme Court had pronounced its fiat as to Standard Oil and American Tobacco. The whole business must wait therefore until sometime in the summer of 1911. But when all uncertainty is cleared away, and the movement for the copper mergers finally takes place, there are many low-priced copper stocks having large ore reserves, which will receive a great increment in value. The companies will be taken into some one of the big mergers, and Wall Street will witness what may fairly be called a boom in the copper stocks. Those who would like to put their money into low-priced shares would do well therefore to begin the study of them, now, well in advance of the future boom.

The low-priced shares are found mostly in the Curb Market on Broad Street, where, in rain, sleet or shine, a crowd of men stand out in the open air, and have exclusive control of some of the worst specimens of wildcat stocks in the country, and of some few securities of

the very highest class. It is not necessary to go to a Curb broker to buy any of them, however. Any broker connected with the New York Stock Exchange can buy any security sold in any part of the United States.

No. 52 Broadway.

WHO PAYS?

By Frederick Crosby Brush, D.D.S., New York City

Among the "Practical Points" in the January number of *The Dental Brief* there appears the following:

"Fee Mathematics.—The slate and pencil seem to be now in evidence among members of the dental profession, in the effort to calculate the amount per hour they should charge as interest on the capital invested represented by college expenses and office outfit, and for business expenses, salary, etc. The aggregate of these divided by the number of working hours per year is supposed to be a fair charge. Now, we would like to know how much shall we charge for the time we are not at work, hours when we happen to have no patients? To whom shall the charge be made? And how collected?"

These are pertinent questions that would naturally arise in the mind of anyone not thoroughly familiar with the details of a business system, or not having some knowledge of the way economic principles are applied in the general business world.

It is a fact that the members of the dental profession are beginning to realize the necessity of having a better knowledge of the true state of their business affairs and are resorting to the slate and pencil as a means of obtaining this information, and for the solution of some of the problems that they find confronting them. And it is well that this is so. The ascertaining of the facts and the gaining of the knowledge of how to deal with them will prove the financial salvation of many a man.

Business is the carrying on of exchange for the purpose of increase, so it is axiomatic that for business to be successful it must be conducted at a profit. In order to conduct a business at a profit it is essential that the cost of doing business be definitely known. In other words—the cost of the service rendered must be known before it can be determined what fee, or charge, will be adequate to cover this cost and yield a profit, without being unjust.

In the article quoted the writer fails to distinguish between *cost* and *charge,* for he says: "The aggregate of these (the expenses) divided by the number of working hours per year *is supposed to be a fair charge.*" The aggregate expense divided by the number of working hours does not give the *charge,* but it does give the *cost* upon which the *charge* may be based. If only the bare *cost* was charged business would be conducted at a loss and its purpose could not be fulfilled.

The actual cost of doing business being known, the next step is to determine what amount should be charged in order to yield a fair business profit. Let us see how this would be arrived at in a commercial business, taking for instance, a manufacturing plant. The manufacturer determines the actual cost of doing business with the plant running at its capacity. To this cost must be added a certain percentage to cover waste, a certain percentage for bad accounts, and a percentage to represent a reasonable profit. The aggregate of these amounts suitably divided will give the amount that should be charged for the product. This selling price being based upon the capacity of the plant it is up to the manufacturer to produce a sufficient amount of business to keep the plant running full time, otherwise there will be a business loss which he will have to stand. It would be decidedly unfair to the consumer for the manufacturer to fix his selling price at an amount that would protect him against loss through his inability to produce business.

There are always certain risks which a man must assume when he engages in business, and the failure to dispose of his product after he has it ready is but one of them. Some business undertakings are more hazardous than others and the percentage that it is considered legitimate to charge for profit is based very largely upon the nature of the risk.

Now let us apply these same principles to a dental business. In arriving at the actual number of earning hours in a normal business day of eight hours a certain allowance must be made for the time lost in changing patients and for legitimate business interruptions. The aggregate yearly expense divided by the aggregate earning hours gives the actual cost per hour. This is based upon the idea that every earning hour will be a productive one. But in a dental practice, no matter how well organized nor how large the clientèle, there will be times when some of the hours are not engaged and for which no charge can be made. These hours may be compared to the waste in the manufacturing plant. It will therefore be legitimate to add to the actual cost a percentage to cover this lost time or waste. As in every business there will be some loss expected from bad accounts, an allowance must be made for them. If to this a percentage be added as representing a fair profit, it will give a total which must be added to the actual cost. This sum

will represent the least amount that should be charged in order to protect the business and be fair to all parties.

This amount is of course figured upon the basis that nearly all the earning hours will be engaged and will be productive ones. If the dentist is unable to produce business enough to occupy all these hours, then there will be a loss which he will have to bear. This is one of the hazards of business and a risk which he assumes when he engages in practice.

In advocating a method for determining the cost of conducting a dental practice and of the various operations involved, there has been no thought of dictating what the maximum dental fee should be, but merely of indicating how the minimum fee which could be charged might be determined, and still insure a business success.

The minimum amount of a fee will be governed by fixed conditions. The maximum amount will be governed by the law of supply and demand and by special conditions.

No. 1181 Broadway.

Editor DENTAL DIGEST:

I have read certain articles in THE DENTAL DIGEST signed by "The Philistine," and wish to say that he has some good ideas concerning advertising. Of course his comparison of the Church with Dental Societies is entirely wrong, and I believe the gentleman to be honest in his convictions. His undue references to the Church evidently are due to ignorance rather than malice, the result of a prejudice common to those who have neglected the study of religious history, in an impartial manner, and have depended too much on hearsay.

Aside from the reference made to religion, there is evidence of common sense on the part of "The Philistine," and his view of advertising in dentistry is very reasonable.

A man's duty (whether he is a dentist or not) is to look after the welfare of himself and those dependent upon him. It is his duty to provide for himself and family at any cost. Now if he finds that he can better his situation by advertising, that is his business alone and a matter which should concern nobody else, so long as he deals fairly with everybody.

In conclusion, I will say that, in the discussion of dentistry, sarcastic reference to Church and religion should be avoided. Religious controversy is hardly a proper subject to be treated in the pages of a dental journal because of the varied persuasions of your subscribers.

Very respectfully,

V. M., D.D.S.

"COMMENCEMENT"*

THERE is still another avenue leading to experience that is always open—the advertising dental office. Mention of this has been left until the last for many reasons; one is that the moral pitfalls and temptations in an advertising practice are many and cannot be discussed here. Unless a young man has a strong moral character and complete mastery over himself and his passions, I should advise him to avoid seeking experience through this channel. If he is of the stuff that men are made of, however, a couple of years' experience in various offices may be of considerable value to him.

The young man who seeks a position as an assistant with the idea of obtaining as wide an experience as possible before engaging in practice for himself, will do well not to remain too long in one place. A good plan to pursue will be: first get a place where all kinds of work may be done; after a good idea has been obtained of the general conduct of a practice, seek another place where special work can be done. For instance, first get a good idea of general practice, then take up extracting; follow this by doing all kinds of good work; spend some time doing general prosthetic work, and wind up with general operating and prophylaxis work. The man who will devote two or three years to the carrying out of such a program will have obtained in return the best post-graduate course in dentistry that it is possible under present conditions to receive. Do not think that such a plan is a mere theory that could not be carried out, for it has been done in a number of instances and can be again by any man who has the moral courage to undertake it and the grit to see it through.

LOCATION

This is a subject about which it is hard to offer advice; men differ so widely in temperament, individuality, and inclinations that it is difficult to foresee what conditions will have to be met. There are, however, some major things that should be given considerations when a man is selecting a location for his future activities.

The first of these is the question of health. Some men are so constituted that they are greatly affected by climatic conditions. When a man is sensitive to such influences, he should be particularly careful not to plunge into some place because there seems to be a good oppor-

* Abstracts from Dr. Frederick Crosby Brush's forthcoming book—"The Business Problem of a Profession," copyrighted.

tunity for immediate business. He should study all the conditions thoroughly; for health is one of the greatest business assets a man can have. If climatic conditions are such that health cannot be maintained, he will be most seriously handicapped at a time when it will seem too late to begin all over again in some place where the climate is more favorable.

To an ambitious young man a large city will seem to present unlimited possibilities. There will be opportunities to affiliate with large professional organizations, to meet and become acquainted with men of note in the profession, to build a large practice and receive high fees, and to pursue his own course through life uninterrupted by the petty criticisms that are coincident with life in many small communities. But life in a large city is not all smooth sailing. It means heavy expenses that seem to be ever increasing, meager opportunities for making social acquaintances that are worth while, inadequate means of becoming professionally known to the public; and the long heart-breaking struggle to gain a practice that yields a sufficient income to enable one to enjoy the real pleasures of a city life.

As the care of the teeth and mouth is still looked upon as somewhat of a luxury by the wage-earning class, the dentist will be the first whose business will be affected, and instead of receiving cash he will have to give credit. He will be the one whose lost time and opportunities are the hardest to make up. If the bulk of one's practice consists of wage earners or their dependents, it will be necessary to be continually on the alert in order to be prepared to meet and go safely through these periods of business depression. In such places the amount of business that a dentist can do, together with the kind of operations and the fees that can be charged, will depend very largely upon the class of people employed and the wages they receive. If a town has industries of many different kinds, trade conditions are not likely to become as acute as they would if but one industry was depended upon. A town dependent upon one kind of an industry for its prosperity should not be looked upon favorably as a place in which to locate unless the opening seems an unusually good one.

A country town or village with a tributary farming population may possess attractions to one who will be content to lead an uneventful existence. The social requirements and activities of such places are usually decidedly limited. Any especial stimulus for mental exertion will be lacking, and he will be an unusual man indeed that does not get into a rut and drift along from day to day, following the lines of least resistance. General expenses may not be as great as in larger communities, but it will be found here as elsewhere that all things are rela-

tive and that the expense account will be in about the same ratio to the amount of business that can be done, as in other places. The gross annual practice in such communities averages about $2,500. Many credit accounts have to be carried, and collections are slow and in small amounts. Money can be earned and by close economy it may be saved in these communities, but very seldom is money made in the sense that the term is generally used in the business world.

RAISING A BABY PAYS A NET PROFIT OF $5,850 AT 30 YEARS' GROWTH

There's No Return for Twenty Years, and the Rearing Outlay Averages $207 Every Twelve Months, According to Statistics of California's Health Board

Sacramento, Cal., Dec. 13.—The commercial value of babies is made the topic of an article of the bulletin of the State Board of Health just issued. The article contains an estimate which shows that the average cost of the upbringing of a child from birth to twenty years is $4,150, and its average commercial value at the end of that time is $4,000. These figures are based on the net earning capacity of the average citizen for all the gainful occupations in California, as reported in the State Labor Commissioner's report from 1908 and 1909, capitalized at six per cent. interest.

As an investment it is estimated that by the age of thirty the average man is worth $16,000—$4,000 value, plus $12,000 gross earnings—and has cost $10,150 for growth and maintenance, or a net gain of $5,850 in thirty years.

The average value for all children in the United States was reported by the National Conservation Committee to be $2,900. Upon this basis the labor element in professional and industrial activities in this State represents $6,895,000,000, or approximately twice the total value of all other sources of wealth.

Upon this basis, the article declares, the State is losing through preventable and postponable deaths, expenditures for illness and the like, probably $100,000,000 annually.

DENTAL PROTECTIVE ASSOCIATION

AGREEMENT WITH DR. W. H. TAGGART.

THE Dental Protective Association of the United States was organized by Dr. J. N. Crouse, of Chicago, in 1888, when it was quite common for patent claimants to collect unjust and exorbitant royalties from the members of the Dental Profession. Since this Association was organized it has succeeded in preventing patent claimants from abusing the Profession, and its strength and influence is recognized by all who are familiar with its history.

About four years ago Dr. W. H. Taggart, of Chicago, described by means of papers and clinics a new and original method of making inlay fillings. Briefly stated, the method consists of making the inlay in wax and reproducing the wax inlay in gold or other metal by a casting process. Since the introduction of the so-called Taggart Method, the practice of dentistry has been in a large measure revolutionized.

Dr. Taggart is now the owner of certain United States letters patent and applications for United States letters patent relating to the Method and Apparatus for casting inlay fillings according to this method; and he has brought suit against at least one member of the Profession and has threatened the members of the Association with litigation based upon the alleged infringement of said letters patent.

The question arose as to what action the Association would take in case any of its members were sued for alleged infringement. To engage in a long series of litigation is as unsatisfactory as it is unprofitable for all concerned. Let it be understood that the Dental Protective Association was organized to *prevent abuse* of its members, not to defraud any man of his just due. Dr. Taggart has offered to sell his machine for casting, including the permission to use the Method for $110.00, or the permission to use the Method alone for $50.00. Was this an abuse of the Dental Profession? Many dentists including Association members felt that it was not and at once purchased Taggart's machine, others felt that Dr. Taggart was asking too much since the process could be carried out successfully with a less complicated and therefore much cheaper machine.

Every dentist realized the value to him individually of the Taggart Method; and it can be said that most practitioners felt that they were in some way indebted to Dr. Taggart. How much in money value they were indebted, and how the debt could be liquidated, were points which did not seem to be clear in their own minds. Therefore, the Board of Directors of the Association was urged to take the matter up with Dr. Taggart and see if amicable terms could not be made by which its members, present and prospective, could practice the Method with the machine they were now using without danger of litigation. The Board took the matter under consideration and caused an investigation to be made respecting the validity of the Letters Patent, and after being convinced that the same would probably be sustained in whole or in part if litigated, concluded that if a compromise agreement could be effected between the Association and Dr. Taggart a threefold object would be accomplished.

1*st. The members of the Association, both present and prospective, would be protected, without litigation, in case Taggart succeeded in validating his patents.*

2*nd. It would afford an opportunity of banding the Profession together into a strong and permanent Protective Association.*

3*rd. It would give Dr. Taggart, without litigation and without a hardship on any dentist, a just and reasonable compensation for his valuable invention.*

It is with a great deal of satisfaction, therefore, that we are able at this time to announce to the members of the Association and to the Profession at large that an agreement in writing was entered into between the Board of Directors and Dr. Taggart, and the same was duly signed and delivered on the 5th day of December, 1910.

The terms of the agreement are such that any member of the Association in good standing can secure the present Taggart machine for the cash sum of Seventy-five ($75.00) Dollars, including the permission to use the Method, or he can obtain the the permission to practice the Taggart Method alone for the life of the patents (17 years) with any machine he may now be using for the cash sum of Fifteen ($15.00) Dollars, provided the amount is paid before the entry of any decree or judgment finding Taggart's patents valid or granting damages for infringement.

The agreement further provides that any member of the Profession who joins the Association within the time above specified can also secure such permission on the same terms.

The fee for membership in the Association is Ten ($10.00) Dollars. It will be seen then that for $25.00 any member of the Profession can obtain membership in the Association and the permission to use the Taggart Method. The Board of Directors feel that this is a just and fair proposition for all concerned, and they earnestly hope that the members of the Association, both present and prospective, will realize and appreciate the delicate situation with which we were confronted and accept at once the terms of the agreement. We ask you to carefully read the accompanying amended By-Laws and trust you will immediately sign and return the same, together with your check, to the President, Dr. J. N. Crouse, 2231 Prairie Avenue, Chicago.

Signed:

J. N. Crouse,
C. N. Johnson,
J. P. Buckley,
Board of Directors.

We note a general lack of papers by Texas dentists in the *Journal* this year, and regret to see that the general prosperity has driven out thoughts of dental literature—yet we are not surprised.

It merely goes to show the intensely practical age in which we are living, and we propose to join the onward march of popular opinion and give to the practical side of dentistry more of our space next year.

When you think of it coolly and clearly, the man who has solved the financial problems of practice is really the one best qualified to develop the higher side or scientific research side—because he can afford to.

No man who has to worry over his last month's bills and next month's rent can give as good service to his patrons as he who has no worries of such a nature. Practice alone presents enough complex and nerve-racking conditions without the added worry of finance.

Learn to use your time, but not abuse it. Use consists of doing that which best repays you for the effort. Abuse may be misdirected effort; as, for instance, a man's doing his own laboratory work.

The hunting season is at hand, and an afternoon each week can be well used by every dentist—out in the woods. It'll put ginger in your next week's work.—*Practical Dental Journal.*

EXPERIENCES

Editor DENTAL DIGEST:

I came of a good old German and Scotch ancestry and had by inheritance, a good supply of industry, thrift and good health and when I graduated, in 1893, I had nothing in this world but a sound, healthy body, a sweetheart and a very limited amount of knowledge of dentistry.

I located in a small town and in about three months I had saved enough to get married and start housekeeping in three small rooms, with just a handful of furniture.

I always, from the first, tried to do my work the best I could, but as all older men in the business know, every young fellow has to fall down about so much, and I was no exception.

I saved a few hundred dollars and when my failures began to come in too fast for comfort, I moved away and let some other fellow fix them up.

I moved to a town of about a thousand inhabitants, with a good farming country around it. The man who had been in the town for fifteen years before me, came to me and said if I would give him $50.00 to get out of town with, that he would move away, that the d—— place was no good anyway; so I bought out my competitor at his own price. By buying out my competitor I was able to get his old stand, which is still my office; I cleaned up the place and furnished it the best I could and started in to see if I couldn't suit people well enough so they wouldn't go to other towns for their work, which they had been doing for years, while the other dentist smoked a big black pipe and cursed the town because the best people went away for their work.

The first year I took in $2,902.05 and it looked pretty good to me. I had a nice little horse and a good bird dog, and I rode and drove and hunted and got acquainted with the farmers all I could, but in the main I was on the job.

I went to the dental societies every year and learned all I could from every dentist I could get to talk about his ways and methods.

I did a good deal of extracting in my early practice and I got people coming to me from all around the country to get their teeth out (without pain?) When these people had teeth that could be saved I tried to get them to have them fixed up, and a good many did; some of them are still using teeth that they came to have extracted a number of years ago.

I used to think I had to compete with the cheapest dentist I had as a competitor, but I have learned that the majority of people want a good article and are willing to pay a good stiff price, if it is explained

to them that cheap dentistry is worse than none at all and that good goods and good work have to cost more money, but that they will last practically a lifetime; and they like to brag how much they have in their mouth.

It certainly gives a man prestige to have it known that he is good but high-priced; it keeps the scum, that you don't want, away and it is sure to bring the better class, if you can deliver the goods.

When I had saved enough money, I bought a lot and built a ten-room house and put in hot water, heat, and hot and cold water in two bathrooms and in the kitchen, and when I had it complete it was worth $5,000 and it suits us fairly well.

The next thing I did was to take out a five-thousand-dollar, old-line, life insurance policy and after I had made five payments on it I took out a ten-thousand-dollar policy, ten-payment, endowment, and I have got the big one all paid and the other one two-thirds. About four years ago I took out another fiver, which makes me feel good, when I think about my family, and it won't be bad to have if I live to get old.

Besides the life insurance, I have a strong $15,000 worth of real estate and interest-bearing securities, and I have never denied myself anything I wanted, either. I have a good automobile, which I ran six thousand miles last season; I have a good saddle horse and a big Texas saddle, and I ride either one or the other every day, unless it storms too hard.

I haven't been sick enough to miss a meal for twenty-five years, and I believe I have done as much hard work as any dentist in the country (in the same number of years) and I am only forty-two now.

Last year I did $5,707.65 and took in $5,414.65 and the present year just closing is just as good, and I live in a small country town where expenses are very small.

I used to think that the only place was in a large city, but when I talk with a lot of the boys who live and do business in the city and they tell me that they are not able to save anything, that it takes it all to keep up appearances, then I say none for mine.

If you can use any of this to help some fellow who is trying to get started I will feel well paid for the time that it has taken to pound it out of the machine.

If I had you for an evening I could tell you a lot of things that are business-getters and money-makers, but my arms are tired to-night, and I don't want to feed you so much the first time that you never will want any more.

Very respectfully yours,

P.

Editor DENTAL DIGEST:

On page 746 in the December, 1910, issue of the DENTAL DIGEST I behold this query: "Could this have belonged to the *facultative-anaërobic* class?" I am interested in that expression. I have never heard it before. All the bacteria with which I am familiar are included in the three following groups: 1st, aërobic bacteria, which can only act in the presence of air, or oxygen; 2d, anaërobic bacteria, which can act only in the absence of air, or oxygen; and 3d, facultative bacteria which are capable of acting either in the presence or absence of air, or oxygen. Manifestly, according to the above classification, the terms anaërobic and facultative cannot be combined. If the dentist who had previously treated the root under discussion had left in the apical third, either anaërobic or facultative bacteria, he would have had an acute alveolar abscess on his hands within a week.

I respectfully submit to the doctor the opinion that the apical third of that root contained aërobic bacteria which, due to the total exclusion of air, had lain there dormant for four years.

A. H. HAMMOND, Freeport, N. Y.

Editor DENTAL DIGEST:

I have read the letters from brother practitioners with a great deal of interest. Also have profited by Brother Bill's letters. I will give a synopsis of my experience and then ask for some information.

I have been practising for eight years, and for the first three did most of my work on credit or any way, just to get practice. I only collected about 60 per cent. I soon found it was getting me in debt and forcing me to put off my bills, consequently building a reputation for not paying my bills. I then started anew and was more careful who I worked for and pushed collection hard. I run my average up to about 90 per cent. With that I have only been able to keep my accounts paid up and make a living for my family, which is not extravagant. I now realize the fact that I am growing older and am not laying away for a rainy day, which is a serious proposition for every dentist to consider.

The letter in your November issue from an Ethical Advertiser struck me very forcibly. As I have been president of a Dental Society and have always tried to take an active part in building up my profession as best I could, I now won't have to look to the principle side of same, so would be glad if you would send me the address of the Brother who wrote as being an Ethical Advertiser, as I would like to become one if I knew how.

Very respectfully,

AMERICUS.

PRACTICAL HINTS

[This department is in charge of Dr. V. C. Smedley, 604 California Bldg., Denver, Colo. Beginning with the January number, every item published in this department will pass through his hands, and to avoid unnecessary delay hints should be sent direct to him.]

A HINT IN EXTRACTING ROOTS.—Teeth that are badly decayed under the gums can be easily extracted by boring or enlarging the root canal and setting in a small steel screw; with this firmly set in the root you can soon wiggle it loose, leaving a clean socket without lacerating the gums. The supply houses have an instrument for this purpose, but they are too blunt, and the thread wears off and soon becomes dull. —W. F. REBER, Chicago, Ill., *Dental Review.*

TO REMOVE GREASE SPOTS FROM CLOTHING WITHOUT LEAVING A RING OF STAIN AT THE EDGE.—Moisten the cloth with water, making a circle around the spot, but not coming in contact with it, then sponge the spot inside with chloroform.—J. S. JACKSON, D.D.S., Denver.

TO DENTISTS AND OTHERS WHO WASH THEIR HANDS OFTEN THIS COLD WEATHER.—Wash clean with soap and water and dry moderately well, then rub soap on back of hands and dry without washing off soap; by so doing they can be kept soft and not chap, with little trouble.—J. S. JACKSON, D.D.S., Denver.

TO PREPARE SHELLAC VARNISH.—Clear shellac varnish may be prepared by first making an alcoholic solution of shellac in the usual way; a little benzole is then added, and the mixture well shaken. In the course of a day or two, the fluid will have separated in two distinct layers, an upper alcoholic stratum, perfectly clear, and of a dark-red color, while under it is a turbid mixture containing the impurities. The clear solution may be decanted or drawn off with a pipet.—L. R. P.,D.D.S.

TO CUT DOWN FILLING, OR SEPARATE DISKS.—In separating teeth, or cutting down fillings with sand-paper disks, first run both sides against a piece of dry soap. You will be surprised and pleased to see how nicely they will go between the teeth, and how much better they will cut the gold.—L. R. P., D.D.S.

Pain Cured After Extraction.—Dr. Wilson says, "The pain that occasionally occurs so acutely after the extraction of a tooth appears to be a centralizing of nerve force in the cavity, possibly from the extension of the nerve sheath before giving way. This pain is instantly cured by a strong sniff of ammonia."

To Obtain Clean Results in Casting Inlays and Bridges.—This depends not only on a well-finished wax model, the surface of which has been smoothed over with vaseline, and this in turn removed by means of alcohol, but also on the manner in which the same has been invested and heated. I have obtained my best results by first painting the wax model, after mounting it on the sprue wire, with soapy water, just prior to investing, and then applying the investment material over this with a camel's hair brush. The soapy water causes the investment to flow evenly over, and adhere to the wax model. The investment should be thoroughly mixed for a few minutes to a creamy consistency, and then by rolling the mixing bowl slowly round on its side all air bubbles are excluded. In heating, do not bring the ring in direct contact with the flame, but place a thin sheet of asbestos in between, which obviates any liability as to the investment cracking.—A. Dangar Burne, Sydney, N. S. W., Australia, *Pacific Dental Gazette.*

Method of Mending Plaster Models.—While the following method is not entirely new to all, it has been of such great benefit to me that I want to call attention to it.

The best way to mend a broken plaster model is as follows: Take any of the oxyphosphate cements and thoroughly saturate the broken surfaces you wish to mend, or unite with the liquid. Then use medium mixture of the cement and cover the joint and press the parts together, and the result will be satisfactory beyond any other method I have ever tried.

The only difference between this and the old methods of using cement in repairing broken models is in saturating the parts with the liquid, thus avoiding the absorption of the liquid by the dry plaster.—Dr. O. H. Simpson, Dodge City, Kansas, *The Bur.*

For Pain After Extraction.

℞

Chloretone,
Campho-Phenique, to saturated solution.

Sig. Apply on pledget of cotton to socket.—L. A. Jordan, D.D.S., *Dental Register.*

THE PROPER APPLICATION OF THE SALIVA EJECTOR.—It is entirely unnecessary to subject a patient to a prolonged and tedious sitting with the saliva-ejector under the rubber-dam and cramped upon the lip. After adjusting the dam, cut an opening with a curved crown-shears, remote from the field of operation, and insert ejector through this opening.

You will be surprised at the comfort you have rendered the patient, and, above all, it overcomes the closing of the apertures in the injector—a very frequent and annoying affair to both patient and operator. Do this with your next case and watch the change.—BERNARD BRAMM, Chicago, *Dental Review*.

PORCELAIN CROWN—CAST GOLD BASE.—Select a pinless crown (any make) to suit case. I find the Dentsply Crowns preferable in most cases. Trim the root a little beyond gum line, all around. Fit a roughened iridio platinum wire, 14 to 16 gauge, to canal, extending beyond root, to length of hole in crown. Grind crown to contact with root at labial, but make it short toward lingual, leveling edge all around except at labial, so that wax (and gold) base will be somewhat cup-shaped. Oil base of crown, soften small piece of wax. Heat pin and melt into soft wax; then press pin and soft wax into hole and against base of crown, and force to place upon root; trim, cool, and remove. Carve wax carefully, adding a little if necessary, and place once more upon root. Remove carefully and invest root end of pin and wax with crown in place. Later remove crown, attach sprue, soak thoroughly and finish investing. After the investment has thoroughly set, been dried out gradually, and heated almost to a red heat, cast with pure gold at a white heat. Adjust to crown and root, polish, and set to both with one mix of cement.

Dentsply diatoric bicuspids make good crowns with gold base, as above, after filling lateral holes and undercuts with gutta percha or cement and gold foil. Or with gold cast directly on to the porcelain and into the entire retentive form of the tooth. The porcelain should be at a red heat when the gold is cast, and of course, be allowed to cool gradually. I have made and set quite a number of these crowns, only one of which has failed, in which case I simply selected a new tooth of same mould, ground off lateral arms of gold base remaining upon root, and cemented new tooth to place.—V. C. S.

THE wise man seeks no recognition for what he does.—LAO TZU.

THE CONDITIONS OF SUCCESS*

By J. Leon Williams, D.D.S., L.D.S., London, Eng.

There are, in my opinion, but two general ideas or ideals of success, and they may be defined as being founded on the conception of power and the conception of acquisition. The highest form of success is synonymous with evolution, and evolution is development in power. This is the conception of success that has always been held by the world's greatest teachers, by those who believe that man is a creature of unmeasured and perhaps immeasurable possibilities. By process of material and spiritual evolution man is becoming more and more the master of nature and of himself. Powers previously unsuspected are constantly appearing, and the development of every new power seems to supply the soil in which still higher faculties take root and grow in turn.

Success, therefore, in the broadest and best interpretation of the term, should be measured by the extent to which the individual, by his own volition and effort, is assisting the great inherent constructive powers of nature in his own evolution. But this, I fear, is not altogether the conception that the great majority of people have in mind when they talk or think about success. To *acquire* rather than to *develop* is the prevailing idea of success. To acquire money, friends, and popularity—that is the usual thought of what success means. The success of acquisition, of course, is perfectly legitimate, if one but maintains the right mental attitude toward it; in fact, it should always come, and always would come in a properly organized society, as the natural result or reward of the success of development or evolution. But that mental attitude is the all-important thing. It is what a man intends in his action that counts, so far as he is concerned.

THE IDEAL OF SUCCESS

What, then, is to be our ideal of success? We must determine this before we can take the first step toward discussing the principles or elements of success. Let us try to get at the real heart of the matter.

*Read before the New York State Dental Society, at its annual meeting, Albany, May 5, 1910.

To the young man just entering our profession (and it is to him that this paper is chiefly addressed) the word "ethics," which is intimately associated with thoughts of success, is usually interpreted as a term of restraint, when it should connote freedom and liberty of the highest order. But the subject is not often presented so as to permit of such an interpretation. The sole aim of ethics is, or should be, the placing of a high estimate on the value of conduct, and by conduct I mean a man's whole attitude toward himself and his fellows. A man starts out in life with certain powers and accomplishments which he desires to dispose of to his fellows in return for certain benefits which they can bestow on him. A man is successful just to the extent to which he can materialize those powers and accomplishments, just to the extent to which he can convert them into something that will add to the comfort and happiness of his fellows; and ethics should teach him how this exchange can be most effectively brought about, how society may realize the full value of a man, and how a man may develop and express himself with the greatest freedom and liberty. It is my conviction, founded on the study and observation of many years, that the chief cause of human failure in any position in life is man's willingness to dispose of his powers and accomplishments at something below their real value—his willingness to sell himself too cheaply—and what I have to say in this paper will be said from that point of view. The first and most important element in all human success is to *believe* greatly—to believe in oneself, in one's destiny, and in the absolute benignity of the powers that control that destiny. If that belief, that faith, does not underlie all detail, then the detail is mere surface trumpery. A witty after-dinner speaker in London has just made the suggestion that what our weary, overworked, depressed world most needs is the appointment of official *encouragers*—men who shall go about quietly and endeavor to make people think more highly of themselves. There is a deep philosophy behind this pleasantry. To believe greatly is to will greatly, and to believe and to will greatly is to achieve greatly. The highest form of individual success is that in which work or calling reacts on life and character, ever stimulating further effort and higher evolution, and the material reward of such a life should always be sufficient and adequate.

ELEMENTS OF SUCCESS IN THE DENTAL CAREER

If you agree with my conception of what constitutes success, let us make application of the foregoing statement of general principles to our own occupation. Let us follow the career, step by step, of a man from

the moment that he decides to become a member of our profession, and mark the influences and conditions—or, in the terms of my subject, the elements—out of which success may be constructed.

CONDITIONS FOR THE DENTAL STUDENT'S SUCCESS

Our hypothetical young man's chief asset at the commencement of his career will be his knowledge of all the details of our professional work and his power of making practical application of that knowledge. This asset bears about the same relation to professional success that capital and credit do to mercantile success. It is, therefore, highly important that the value of this asset should be raised to the highest possible degree. It is thought to be in the nature of a commonplace or platitude to say that the first and most important condition of success in any calling lies in the detailed knowledge that a man has of that calling; but I am sure very few young men realize the full significance and meaning of that commonplace expression, for the simple reason that its full meaning is anything but commonplace. In its broadest interpretation it involves the deepest problem of our material and possibly of all higher existence—the problem of the acquisition of power over our own organism and over our materials, and the latter may almost be said to be involved in the former. In the very forefront of the conditions necessary for acquiring power over our own organism must be placed determination or will, a quality capable of infinite or at least of indefinite extension. There, again, we seem to be uttering a commonplace, and again I must insist that these commonplaces contain the deepest philosophy of life and have become commonplace only because they are spoken without thought. Let our young man, at the moment of deciding upon his career, determine as completely and firmly as he can that he will enter upon no course of study or action he has not first decided to be well worth his best effort, and once having reached this decision he should allow nothing to stand in the way of making the strongest effort possible in the particular line of study or action in hand.

The definite knowledge or power gained by conquering as thoroughly as possible each problem attacked, constitutes only the smaller part of the benefit derived from pursuing such a course; *the larger benefit comes from the contribution which every such effort makes to the firm establishment of the habit of always willing to do the best that is in us.* It is impossible to overestimate the importance of such a habit in the development of human power. To send the impulse of strong will along our nerves, setting our muscles in action to perform in the most thorough and efficient manner possible any particular piece of

work, not only renders it easier to perform that work a second time, but it actually increases the power to reach a higher standard at every succeeding performance. On the other hand, any falling away from our own highest standard actually weakens our power for any subsequent effort. This is not a statement of fancy, but of fundamental law. These are facts involving the first principles of physiology and psychology, upon the operation of which all evolution depends. It is the ignoring of these principles that leads to that appalling waste of human energy that we may daily witness on every hand, a waste five times as great as the energy required to do the necessary work of the world.

The way, therefore, to conserve our energies to the utmost and to develop our power to the utmost is to undertake no useless or worthless action, and to always do in the best possible manner whatever we undertake. I wish the great importance of these facts could be brought home to every student in our dental schools. Success depends upon these things more than upon all else—not only success in all material ways, but also that higher and more precious kind of success, the success of strong character-building.

What the dental student of to-day most needs is not greater opportunity or greater variety of work, but a nobler ambition and a stronger will to take advantage of the rich opportunities already within his reach; and I think that the teacher places a poor and cheap estimate on his own work and his own duty when he tries to absolve himself in a more or less fictitious rivalry of opportunity for the student. The true teacher, the man who believes in himself, in the real dignity and significance of life, and in the responsibility of his calling, can accomplish far greater results than are commonly realized with far less material or opportunity than exists in any respectable dental college of to-day. The chief conditions or elements of success lie right here—in starting the student right and helping him into that attitude of mind in which he will place a high value upon himself and in which he will clearly see in his profession an opportunity for noble accomplishments. And in this attitude toward himself and his profession the young man entering upon his life-work will also find the basis of his attitude toward the public, which is the second important element in his success. It is simply impossible for any man to maintain the conditions necessary to success, if, in his relations with the public, he finds within himself the smallest tendency to speak or even secretly *think* in terms of apology for his calling. Even that expression is not quite strong enough to convey the force of my conviction.—*The Dental Cosmos.*

(*The article is expected to be continued in the March issue.*)

MOUTH HYGIENE STORIETTE

This subject was discussed at a Mass Meeting at Convention Hall, evening of November 10, 1910.

THE STORY OF TIM

(*Continued from January Issue*)

By a Member of the Rochester Dental Society

Tim had a diseased mouth and "colds" were his special trouble. With every cough, with every sneeze, he sent out numberless droplets containing great number of germs. With every exhalation he contaminates his fellows. This condition is particularly bad in crowded unsanitary "annexes"; no child should be allowed to scatter the results of physical neglect in this manner.

But Tim was not conscious of spreading disease; his was only one of many unclean and uncared-for mouths, any one of which was sufficient to contaminate the atmosphere of a whole schoolroom. He passed his burden of microbes around impartially. The uncared-for child of the poor, with aching and diseased teeth, bears the pain, but all his associates, including the carefully guarded child of the rich, with ideal home surroundings, must share in the morbid pathological conditions brought about by his sufferings.

Poor Tim, poisoned with the exuding pus from his defective teeth and the functions of nutrition interfered with, unable to chew his food, he is soon left behind in his studies and figures in the mentally deficient class in school. He becomes discouraged; he is told he is not "bright"; he loses faith in himself and looks with envy on those more favored.

His companions shun him and he has no place in their childish sports. He plays "hookey," innocently at first, but soon without the innocent features and this is the first step in a life of crime.

Whipped and misunderstood at home, apologized for at school, with a reputation for a bad temper for being obstinate and dull, when the whole trouble was that he had to fight a diseased condition produced by a deficient and uncared-for dental equipment; with the poisoned and contaminated and poorly chewed food that refused to build healthy tissue and brain matter, Tim, little by little, day by day, year by year, suffering at first from mental incapacity, denied the association with his fellows, he finds congenial company and becomes a physical and moral degenerate.

Tim's downfall is now complete; he is known among his associates as "Tim the tough"; serves his time in prison, and, on his release, trains with "the gang" and becomes a power in local politics.

Tim is only a type; we cannot escape this responsibility; the child of to-day is to be the ruler of to-morrow, the law-makers and the governor of our cities and the nation.

The law of the statute book is the law made by public opinion and public opinion is being largely shaped by men and women of improper mental and physical development, by men from children grown, who did not have a square deal in our schools, and who labored under a physical and mental handicap; they were never "free and equal" and this is part of the cost that every community is paying for poorly developed children.

Do you think this picture has been overdrawn? How many children whom you know have entered school full of promise and from some unknown cause have slowly drifted from bad to worse, lost their place and degenerated physically and mentally?

Dr. Gulick, after some time investigating this matter, says that two defective teeth in the mouth of a child will retard him for half a year and adenoids will keep a child back a year.

What are we doing for children like Tim in this land of ours? Don't you think that he has a right to have his mouth placed in condition; if his parents cannot afford to have it done, then the state should step in and insist that the conditions should be corrected. "For the child, not charity, but justice."

Tim's father was a hard-working man; he had by the closest economy bought a house in the suburbs; becoming a property owner was the culmination of a long-delayed dream.

Owning property, one must pay taxes, one of these is that of the schools. Tim's father soon found it cost a lot of money to pay for the "free schools." When he rented his home he had not thought much about the matter, figuring that he was getting the better of the proposition and it was only the rich who had to pay the tax. He hadn't realized that the landlord paid the school tax and then added the amount to his weekly rental.

What made the taxes so high?

He was told that it took eight years for a boy or girl to go through the public schools; a child starts at six, and at fourteen should be graduated and the cost is figured at so much per capita.

Every time a scholar fails in his school work and is left behind it takes just so much longer and adds materially to the school tax. It is estimated that this entails an extra expense of between three and four

million dollars in the school work of New York City each year. Some of this was due to defective mentality, but 90 per cent. was from defective physical condition, and undoubtedly 90 per cent. or more of the defective mentality was due to physical deficiency. A very large proportion of those suffering from physical defects were dental. In one school, of 308 who were physically defective 267 had bad teeth. Furthermore, from 75 per cent. to 98 per cent. of our school children were suffering from defective teeth; these figures were not guesswork, but carefully compiled from every country in the world.

What are the people of the United States doing to combat this evil in the public schools? Why, nothing! We have plenty of money to fight doodle-bugs, foot and mouth disease among our cattle and infectious disease among hogs, and money for forest preserves.

In 148 cities of the Union during the year 1907 the ratio for health department expenses to the total government expenses were 1 8-10, the ratio for fire and police in these same cities was 23 per cent. Greater New York spent $8,000,000.00 on her fire department with a fire loss of $9,400,000.00, for the public health department, $2,418,499.00. The value of life lost from preventable disease in New York City yearly, using Professor Fisher's estimate of $1,700.00 as the producing value, was $56,550,000.00.

Question—Would it not be an economy to spend less money on our cattle and hogs and more on our greatest national asset, the boys and girls of to-day, who are soon to be our rulers and law-makers?

If Tim had lived in Germany, he would have been compelled to keep his mouth clean, not only for his own good, but for his fellow students. Germany is a country where they are not only very much concerned about the health of their cattle and hogs, but have the intelligence to look after their school children as well.

It was only after the startling nature of the school children's need of dental services were presented to her that, after mature deliberation, the work was undertaken and first established in the city of Strasburg, where they have recently erected a $60,000 building for the school dispensary. All school children's teeth are examined twice yearly and those too poor to pay are treated without recompense and the municipality pays for the services rendered. This action has been followed by other cities, and at the present time over forty have dental dispensaries connected with their school system.

Switzerland, Russia and other continental countries have followed her example and in the city of St. Petersburg, Russia, are nine such institutions for her worthy school children.

Germany, having established this espionage, was the first to dis-

cover a great truth; it really paid in dollars and cents to take care of her school children's teeth.

The work has been in operation for a sufficient length of time to demonstrate:

First—That the time expended in putting the teeth in order was far less than the time formerly lost in toothache and disability caused by diseased teeth.

Second—That the cost of keeping the teeth in order was more than compensated for by better health and consequent reduction in medical expenses.

Third—That the child became physically stronger, secured a higher average in his studies, was easier to control and was apparently happier.

In foreign countries, the caring for the weaker members is taken as a matter of course; this is especially true in the case of the children. To the poorer members, their country is indeed a fatherland, holding out a helping hand for the benefit of all.—*The Union and Advertiser.*

FREE EXAMINATION OF SCHOOL CHILDREN'S TEETH—WHAT ORAL HYGIENE MEANS TO THEM*

By F. B. Hicks, Brookline, Mass.

(*Concluded from January issue.*)

As to the results from some of the early work I will quote from a letter written by the principal of the Pierce School:

"The examination of the teeth of the children has been of unreckoned value to the school ever since. It gave us absolute data upon which to work, and indicated common sense measures for bettering the condition by care and repair. The latter was, of course, chiefly incumbent upon the parents who cheerfully came to the help of the teachers. A great many children willingly submitted to the ministrations of the family dentists, when family and neighborhood pride was roused. The response from the homes was prompt and cordial. Nothing better could be asked for.

"In cases of great poverty we encouraged the older children to go to the dental school infirmaries. Several cases were well taken care of there. The kindly spirit and gentle dealings of the dentists who con-

* Read before the New Brunswick Dental Society, July 12 and 13, 1910, at Moncton, N. B.

ducted the tests here at school did much toward cultivating a feeling of confidence on the part of the children, and a willingness to have evils corrected.

"But by far the best results have come by the care of the teeth, instituted by the examination. Children have been given practical lessons in the proper care of the teeth all through every grade, lessons in the proper care and cleaning of the teeth form the most important of the health lessons.

"This year we have gone one step further. A local druggist has been induced to sell a tooth brush for ten cents. After the lessons on the care of the teeth, the children are invited to bring their tooth brushes to school. All our primary classes this month are having tooth brushing contests, where the teacher illustrates with her own brush, and the children vie with each other to exhibit proficiency in cleaning their teeth exactly right. I am forced to admit that though every child brings his own brush, several of these give evidence of having been bought on the way to school."

I will quote some from Dr. Lindstrom: "The best proof of the service rendered by a dental dispensary augumented by its intelligent sympathetic visitor is a concrete case of betterment of total, physical and mental condition. One of the first cases brought in by the visitor for treatment at the Lynn Dispensary was a child about eleven years old. She was anemic, hollow-eyed, gaunt, palpably underfed and diseased. Examination of the mouth showed that every tooth in her mouth was decayed. Some were so far gone as to be beyond treatment. All needed attention. The next impression of the mouth was one of utter neglect and general decay. Pus exuded from several of the sockets, and the total effect was revolting to the observer.

"The task of cleansing, repairing, filling and extraction completed, the child was preached to in all seriousness as to her future duty, and equipped with brush and powder, was sent home but not forgotten. The visitor immediately visited the home and impressed on child and parents the duty of change of habits and constant care. Close watch was kept on the child. Immediately a change for the better in physical appearance was noticeable. It has continued to this day so that the transformation is startling. Freed from pain at night, the child sleeps. She chews her food, because the chewing apparatus is in order. The masticated mass enters the stomach and intestines minus numerous bacilli, which formerly were present. Consequently the child has gained in flesh, in color, in animation, and in zest in life.

"Nor is this all. She has become a zealous youthful missionary of the gospel which has saved her. She has won her own family of four

persons to the care of their teeth never known before. She has converted her little playmates to better habits in dental hygiene at home, and also to resort to the dispensary for examination of their teeth and such care as is prescribed for them there. This gospel she preaches insistently, when at play or as a regular business or street corner propaganda, and it is an effective sort of preaching, because so wholly unselfish, and because so splendidly supported by the transformation in her own case.

"The case is especially interesting because of the extremity of her need, and the ardor of her zeal in spreading the good news of physical redemption; but it is a typical case, not an extreme or singular one at all. Thousands of children in the schools, for lack of similar investigation, are the easier prey to disease, are slow and lethargic in study and 'retard' the class. Coöperating in similar service, schools, settlements and dental dispensaries can work out transformations in physical, mental and economic efficiency, which will add vastly to the wealth of the country."—*The Dominion Dental Journal.*

NEGLECTED TEMPORARY MOLARS, A LAST RESORT TO AVOID EXTRACTION

In the mouths of neglected little ones it is common to see a temporary molar pulpless, with pericemental attachment that would be painfully resistant to the forceps, with one year or more remaining before the time for the normal appearance of its permanent successor, with the limitations of time and poverty curtailing the to-be-desired remedy, and pity forbidding extracting. Associated with this, possibly, all of this first set have ragged enamel margins surrounding cavities harboring infective bacteria. We all have seen crownless roots in the mouth even with the gum line, without abscess or notable pericemental infection, lost after years by slow decalcification of the exposed surface, atrophy and exfoliation, without a sign of pus. Observation of this has suggested the feasibility of artificially producing this condition as a measure of last resort to prevent the consequence resulting from premature extraction. One preliminary requisite for dento-alveolar abscess is the lodgment and protection which a partially enclosed carious cavity affords to pus-producing bacteria. This requisite is removed when the enclosing walls are removed. Therefore I suggest that in these cases the buccal and lingual walls be removed to the gum line, the walls of the pulp cavity bored out to diverge from the floor, the fistula irrigated with germi-

cides, and the exposed tooth surface treated with silver nitrate. Any portion of the walls that does not interfere with cleanliness and promise to be useful may be allowed to remain. By this simple and quick mechanical measure the formation of pus is stopped, space is conserved for the permanent teeth, and the operation is painless.—Dr. P. B. McCullough, Philadelphia, Pa., in *Brief* (from *Dentist's Record*).

IODIN FOR INTERSTITIAL GINGIVITIS

Dr. Eugene S. Talbot, Chicago, Ill.

More than twenty years ago I commenced the use of iodin for interstitial gingivitis, and in the treatment of that disease found the mouth cleared up beautifully, but it was not until later I understood why I was getting such results. I know now that if we would take those patients that come to us for the first time, even for the extraction of teeth in children's mouths, if the mouths were painted with iodin for a few minutes—fifteen minutes or half an hour before—the germs in the mouth would be destroyed. The difficulty with the official preparation of iodin is that when it is mixed with alcohol it irritates the mucous membrane, which, after one or two applications, will peel off. To overcome this tendency I have compounded a preparation without the alcohol. It is necessary to use only a 10 to 15 per cent. solution. I usually in my regular practice make application when I get through the operation for the day. Every patient that comes to me gets a dose of that before he leaves the office. In cases of sepsis, the tissue between the teeth and around the gums should be thoroughly saturated. If I were to perform operations on the throat, I should paint the tonsils with a preparation composed of zinc iodid, 15 parts, water 10 parts, iodin 25 parts and glycerin 50 parts. This preparation, which I have named iodoglycerole, is coming generally into use, for the reason that it penetrates the deeper tissues and destroys the germs embedded there.

I am confident that if the mouths of all school children were treated with iodoglycerole it would entirely prevent mouth infection in the public schools. I would recommend school authorities to treat the mouths of the children once a week, especially when there are epidemics. —*Journal of the American Medical Association,* Aug. 6, 1910, p. 497.

SOCIETY AND OTHER NOTES

Officers of Societies are invited to make announcements here of meetings and other events of interest.

CALIFORNIA.

The Sacramento County Dental Society meets on the second Monday of each month.—W. H. Renwick, D.D.S., *Secretary.*

The Pasadena Branch of the Los Angeles County Dental Society holds its meetings on the third Friday evening of each month from October to April, inclusive.—Arthur B. Allen, D.D.S., *Secretary.*

COLORADO.

The Denver Dental Asociation holds its meetings on the second Thursday evening of each month from September to May.—Mallory Catlett, D.D.S., *President;* Ralph N. Pullen, D.D.S., *Secretary.*

GEORGIA.

The Atlanta Society of Dental Surgery meets the third Friday of each month at the Carnegie Library, at 8 P.M.—J. K. Barrett, *Secretary.*

ILLINOIS.

The Rock Island County Dental Society meetings are held the third Tuesdays in January, June and October at Rock Island, Moline and Geneseo.—J. H. Nichols, D.D.S., Rock Island, *Secretary.*

IOWA.

The forty-ninth annual meeting of the Iowa State Dental Society will be held at Des Moines, May 2, 3, 4, 1911.—W. G. Crandall, D.D.S., Spencer, Ia., *Secretary.*

KANSAS.

The Kansas City Dental Society meets the second Friday of each month.—M. Dewey, D.D.S., 1016 Armour Blvd., *Secretary.*

MASSACHUSETTS.

The Lowell Dental Society meetings are held on the first Tuesday evening in the months of February, April and October.—Edwin E. Kinney, D.D.S., *Secretary.*

MINNESOTA.

The G. V. Black Dental Club of St. Paul, Minn., will hold a midwinter clinic in St. Paul, on February 16, 17, 1911.

MISSOURI.

The St. Louis Dental Society meets the first Tuesday of each month (unless otherwise announced) at 8 P.M., in the Auditorium of the St. Louis Medical Society.—G. B. Winter, D.D.S., *Secretary.*

NEBRASKA.

The Omaha Odontological Society meets every third Thursday in the month excepting June, July and August.—W. H. Sherradan, D.D.S., *Secretary.*

The seventh semi-annual meeting of the Southwestern Nebraska Dental Society will be held at McCook, Neb., February 23d.—W. A. McHenry, D.D.S., *Secretary.*

The Nebraska State Dental Society meeting will be held in Lincoln, May 16-18, 1911.

OHIO.

The Columbus Dental Society meets the last Tuesday evening in each month except in July and August, at the Carnegie Library Bldg.—Charles Swope, D.D.S., *Secretary.*

TEXAS.

The Dallas Dental Society meets the second Saturday in each month at the office of the *Essayist* for that particular meeting.—Allen N. Nearby, D.D.S., *Secretary.*

CHICAGO DENTAL SOCIETY

AT the regular meeting of the Chicago Odontographic Society, held December 20, 1910, in the Chicago Public Library Building, the name of the Society was changed from the Chicago Odontographic Society to the Chicago Dental Society.

THE ANNUAL CLINIC OF THE G. V. BLACK DENTAL CLUB OF ST. PAUL

THE annual meeting will take place at St. Paul on February 16, 17, 1911, at the old State Capitol. The operative clinic is in the hands of the members and friends of the club, and as in the past it will be along the usual lines.

Doctors Searl, Finn, F. S. and C. H. Robinson, F. S. and W. D. James, Gallagher, Fawcett, Woodbury, Conzett, Black, Crandall, Beemer, Clark, Richardson, Rawlings, G. D. and W. H. K. Moyer, Yerke, C. N. Booth, Jones and others will perform operations. Dr. E. T. Tinker, of Minneapolis, will make a cast gold inlay operation. Dr. C. L. Topliff, of Decorah, Iowa, will be present and prepared to demonstrate his method of removing impacted third molars.

TABLE CLINICS.

These demonstrations will be in the hands of Drs. C. N. Johnson, F. B. Kremer, O. C. Zieger, C. A. Hintz, C. P. Peterson and a number of other men yet to be heard from.

It seems only necessary to say that Dr. J. B. Ridout will demonstrate on both days of the clinic to have the usual interest awakened in what he may do.

At this writing (December 20th) it is not possible to speak of the essayists beyond saying that on Thursday evening, February 16th, Dr. G. V. Black will give an illustrated lecture, and Dr. C. N. Johnson will lecture on Friday, February 17th. There will be several other gentlemen who will read essays.

The profession of the United States and Canada is cordially invited to meet and take part with us.

For all information address Dr. R. B. Wilson, Secretary, American National Bank Building, St. Paul, Minn.

THE SPICE OF LIFE

PIE CUTTERS.—Old Aunt Sally, the highly esteemed cook in a Southern family, was frequently praised for her culinary skill, and, on one occasion, when a number of guests had been to dine with the family, remark was made touching the beautiful appearance of Sally's pie, which showed a very pretty "scallop" on its edge.

Inquiry being made as to how the old lady managed to get such an even design, Sally was summoned to the dining-room and the question was duly put to her.

The emotions of the guests may be imagined when the old lady replied:

"Oh, dat's easy. I jest uses my false teeth."—*Harper's Magazine.*